DOCUMENT RESUME

ED 057 407 24 CG 006 963

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TITLE Investigation of the Reaction of High School Students to a Curriculum Oriented Towards Oceanology. Final Report.
INSTITUTION Portsmouth School Dept., R.I.
SPONS AGENCY Office of Education (DHEW), Washington, D.C. Bureau of Research.
BUREAU NO BR-9-A-050
PUB DATE Jan 71
GRANT OEG-1-9-090050-0113 (010)
NOTE 90p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Attitudes; Career Opportunities; Curriculum Development; *Educational Change; Educational Research; Environmental Education; *Experimental Curriculum; High School Students; *Oceanology; Questionnaires; *Relevance (Education)

ABSTRACT

The purpose of the project was to learn whether any measurable changes in student attitudes can be detected when the school curriculum is made more relevant to the school's physical environment. The scope of the study was to orient the curriculum in all academic departments towards oceanology and then determine by subjective opinions of the faculty and by a pre and post informational and attitudinal questionnaire whether there was any overall change in the school. The results were that (1) student interest in an oceanology section of the library was especially high; (2) the student questionnaire indicated no significant changes in attitudes; and (3) the academic department heads were divided as to whether they were willing to cooperate with the project by altering their present curriculum. The project did create an interest in the Hurricane Island Outward Bound School. It is recommended that the concept of orienting a school curriculum to oceanology be validated in another secondary school located near the ocean. (Author)

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REGIONAL RESEARCH PROGRAM

FINAL REPORT

Project No. 9-A-~~050~~

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INVESTIGATION OF THE REACTION OF HIGH SCHOOL STUDENTS TO A CURRICULUM ORIENTED TOWARDS OCEANOLOGY

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January 1971

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

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Robert S. Day, Principal Investigator
Educational Consultant
Portsmouth, Rhode Island

January 1971

The research reported herein was performed pursuant to a grant with the Office of Education, U. S. Department of Health, Education, and Welfare. Contractor undertaking such projects under Government sponsorship are encouraged to express freely their professional judgement in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U. S. DEPARTMENT OF
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SUMMARY

The purpose of the project "The Reaction of High School Students to a Curriculum Oriented Towards Oceanology" was to learn whether any measurable changes in student attitudes can be detected when the school curriculum is made more relevant to the school's physical environment. The scope of the study was to orient the curriculum in all academic departments towards oceanology and then determine by subjective opinions of the faculty and by a pre and post informational and attitudinal questionnaire whether there was any overall change in the school. The results were that (1) student interest in an oceanology section of the library was especially high (2) the student questionnaire indicated no significant changes in attitudes and (3) the academic department heads were divided as to whether they were willing to cooperate with the project by altering their present curriculum.

The project did create an interest in the Hurricane Island Outward Bound School. It is recommended that the concept of orienting a school curriculum to oceanology be validated in another secondary school located near the ocean.

INTRODUCTION

The idea of studying the reaction of high school students to a curriculum oriented towards oceanology originated with Robert S. Day, the principal investigator. As a new resident of Portsmouth and as a new employee of the Portsmouth School Department in the position of Coordinator of Grant Programs, he wondered what was unique about Portsmouth High School. His conclusion was that it was a "good" high school but not unique in any way except for its physical location on a hill overlooking the arms of the ocean around Aquidneck Island on which it is situated. Meanwhile there was an increasing number of published articles about oceanology and about student demands for "relevance" in their curriculum. After a review of publications of the Educational Research Information Center (ERIC) indicated no studies similar to the planned one, a proposal was written by the principal investigator and submitted to the Superintendent of Schools and the School Committee. With enthusiastic support by the Superintendent and School Committee the proposal to study the reactions of the students at Portsmouth High School was submitted to the United States Office of Education.

The literature search revealed a Regional Academic Marine Science Laboratory in Poulsbo, Washington, and an Oceanographic Education Center at Falmouth, Massachusetts. These projects, however, did not have the scope of the proposal. The project most closely related to the concept of the one for Portsmouth was an experiment initiated in 1965 at Atikokan High School in Ontario, Canada. The school authorities at Atikokan felt that their academic and vocational curricula were divorced from their natural physical setting and hence they sought some way to take better advantage of the deeply educative experience of the outdoors and at the same time improve the school's program in the vital matter of character building. The Atikokan program, operated in conjunction with the normal academic program, was carried out with the help of the nearby Minnesota Outward Bound School. Atikokan high school authorities pronounced the experiment successful.

The original proposal anticipated limitations because the goal of changing teacher and student attitudes is no mean task. The evaluation was to be concurrent with the project mainly by the subjective reactions of faculty and administrative personnel. Objective data were to be obtained from the students by means of pre and post attitudinal questions.The risks were high but so were the gains that might be possible. It was also realized that some of the results may be long range ones just as a good teacher's contribution is really to posterity.

Someone has said that no experiment in education ever fails. And at a time when there are rapid changes in our society and in students it was believed that the oceanology project was one step toward the dream of a relevant school.

With the clear vision of hindsight the principal investigator gives as his fixed opinion that this report would have been more interesting reading if the students themselves had been allowed to plan and then carry out the concept of the research proposal.

The objectives of the study were

(1) to make the current curriculum, which is traditional for a comprehensive secondary school, more relevant to more of the students

(2) to increase the awareness of students to their environment

(3) to assist students to be goal-oriented by making them more aware of the career opportunities open to them

(4) to increase the "esprit-de-corps" and pride in Portsmouth High School and the Portsmouth community

METHOD

I. Background

Portsmouth is a town of 13,000 people located on the northern half of Aquidneck Island. It was founded in 1638 and its government was based on the Portsmouth Compact which allowed all landowners to vote and provided the first town meeting form of government in America.

Portsmouth had no high school until 1961 when Portsmouth High School was built on the site of the Battle of Rhode Island. The school chose the name "Patriots" as its nickname and red, white, and blue to be the school colors. From the school's location on Butt's Hill one can see the Sakonnet River and Mount Hope Bay. The school has 1,350 students in grades 7 through 12. Of the Class of 1970, 54% registered for a formal program in college or technical school, 30% joined the labor market, 9% enlisted in the armed forces, and 7% moved from Portsmouth and were unable to be contacted. Thus Portsmouth is a comprehensive high school with limited traditions because of its short life.

Because of its unique location and because of student's requesting "relevance" in their studies, it was decided to propose a research project to learn whether any measurable change in school spirit or any change in the student's power of observation or curiosity could be detected if the entire school curriculum could be made more relevant to the school's physical environment - the ocean.

The rationale for the development of a curriculum oriented toward oceanology, which includes all activities connected with the ocean, was to make the traditional curriculum more relevant, to increase the awareness of the career opportunities open to them and to increase the "esprit-de-corps" and pride in Portsmouth High School and the community.

The objectives of the present curriculum at Portsmouth High School are to:

1. develop critical independent thinking
2. promote the understanding of democracy
3. produce an awareness and understanding of cultural, literary, and scientific traditions
4. encourage social responsibility
5. help the student maintain and improve his health
6. develop for the regulation of the student's personal and civic life a code of behavior based on ethical principles consistent with democratic ideals
7. equip the student with general skills, techniques, and specialized knowledge which will make it possible for him to do some future productive work related to his aptitude, capacities, and interests.
8. provide the student with varied academic and extra-class experiences which suggest, for his school years and for later life, profitable leisure time activities.

The foregoing rhetoric applies to most schools and colleges. Thus the broad objective of the oceanology research project was to orient the curriculum in each department for a gradual transition from the present course content towards a greater emphasis on and relation to Portsmouth's ocean environment. The objective was not to drop any courses now offered nor to add any new courses. If the demand for a new course, such as oceanography, should arise because of future demand, this would be a separate problem. It was hoped that the oceanology project would also act as a catalyst for continuing change in curriculum evaluation and for developing student and faculty pride in school and community.

It was realized that the scope of the project was wide and difficult because the goal was to change people by changing their attitudes.

When the project was approved, Portsmouth High School seemed to be caught by surprise for even though the faculty knew that the project has been submitted, they did not seem to believe that the plans would actually be implemented. The Director of the Project, Robert S. Day, was the Coordinator of Grant Programs located in the Superintendent of Schools office a mile from the high school

The project extended from July 1, 1969 through October 31, 1970. Publicity concerning the grant appeared in local newspapers. (See Annex I and II in Appendix)

II. Subjects

The subject population was comprised of those students who were enrolled in Portsmouth High School during the academic year 1969-70, in grades 9 through 12. Characteristics of the population are revealed through the large sample (80%) from this population who responded to the questionnaire. Sampled were 632 students enrolled in the Portsmouth High School during the academic year 1969-70. The sex distribution was broken down into 313 males and 319 females. The average grade-point (4-point scale) was 2.5 (C+) for males and 2.3 (C+) for females. A breakdown, by high school grade level and sex distribution, of the overall academic performance of the subjects of the study is presented in Table 1.

Table 1

Academic Performance of Subjects,
By Sex and By High School Grade Level

H.S. Grade Level	Males			Females		
	N	$\bar{X}$	σ	N	$\bar{X}$	σ
9	106	2.5 (C+)	0.6	98	2.5 (C+)	0.6
10	74	2.6 (B-)	0.7	102	2.3 (C+)	0.7
11	63	2.5 (C+)	0.7	63	2.4 (C+)	0.6
12	70	2.3 (C+)	0.7	56	2.0 (C)	0.7
Total	313	2.5 (C+)	0.7	319	2.3 (C+)	0.7

III. Procedures

The method to determine the reaction of high school students to a curriculum oriented towards oceanology was planned to consist of two general classifications. These were: (1) Changes in general activities in the school and (2) changes in individual departments. The changes were planned to be measured by a pre and post attitudinal survey instrument and by the subjective judgments of school authorities. It was realized from the start that the research project was especially broad in that the rationale was to:

(1) make the current curriculum more relevant to more of the students
(2) increase the awareness of students to their environment
(3) assist students to be goal oriented by making them more aware of the career opportunities open to them and
(4) increase the "esprit-de-corps" and pride in Portsmouth High School and its community.

Since the research project was designed to investigate the reaction of high school students to a curriculum oriented toward oceanology, an attitudinal and informational instrument was prepared during the summer of 1969 to find the student's attitude toward their present curriculum. The original instrument consisted of 48 multiple choice and open end questions and was constructed by the principal investigator before being reviewed by Dr. Peter F. Merenda, Professor of Psychology at the University of Rhode Island, an authority on attitudinal questionnaires. This questionnaire was first submitted to Mr. William Carberry, Principal of Portsmouth High School in August 1969, and although he had reservations about giving the questionnaire to students as a pretest of their attitudes, he agreed to submit it to the heads of the various departments who are teaching faculty. The reaction from the heads of departments was quick and vigorous both for and against the questionnaire and to some extentthe project itself. The climate in the school was one of conflict between the "liberals" who saw the questionnaire as something needed for guidance in their own departments and the "conservatives" who did not want to try anything new. The main objections to the questionnaire were that the results might be used by the Superintendent of Schools or the School Committee against the faculty, that students were too immature to answer question about their attitude toward Portsmouth High School, and that students would not necessarily answer the questions honestly.

After the initial confrontation, each head of a department was asked for his recommendations for changing the questionnaire. After all the constructive suggestions were incorporated in a second version of the questionnaire, a lengthy meeting was held with the director of the project, the principal of the school, and heads of the academic departments to decide upon the questions to be asked of the students. There was no unanimity of opinion but the majority agreed that a faculty committee should revise the second version. After the faculty committee submitted its idea as to what should be in the questionnaire, (See Annex III) the principal of Portsmouth High School submitted his own student questionnaire taken from the High School Evaluation Guide. The heads of the academic departments and the principal then voted whether to accept the revised questionnaire prepared by the faculty committee or to accept the questionnaire submitted by the principal. (The choice of a compromise using questions from both instruments was not allowed by the principal). As a result of the vote half of the department heads wanted one questionnaire and half wanted the other questionnaire. The principal then cast the deciding vote in favor of his own questionnaire.

The director of the oceanology project then submitted all the various questionnaires to the Superintendent of Schools who, not desiring any further delay, decided what questions would be asked and the principal investigator used these questions in the attitudinal questionnaire and submitted it to the principal of the high school on December 22, 1969, (See Annex IV in Appendix). The pretest questionnaire was then given to grades 9 through 12 in late January, 1970.

Meanwhile procedures were being carried out for the school as a whole and in individual departments. The planned gradual transition from the present course content to a greater emphasis on Portsmouth's ocean environment was as follows:

(a) Department of Mathematics
Present - no orientation towards oceanology.
Planned - in gereral mathematics adapt practical problems to marine industries; in technical algebra to develop new applications to marine problems; in college preparatory mathematics to use applied mathematics in navigational problems.

(b) Art Department
Present - no orientation toward oceanology
Planned - purchase reproductions of seascapes and other marine art subjects for display throughout the school; create three dimensional applications of the art curriculum to oceanology.

(c) Science Department
Present - a small salt water aquarium is maintained at times; some units of marine biology are taught
Planned - Applications of biology, chemistry, and physics will be slanted toward the ocean; lectures will be given by marine scientists; specialized field trips were planned.

(d) Business Department
Present - no orientation toward oceanology
Planned - emphasis will be placed on the business of seafood resources and aquaculture, the effect of the economics of the fish industry on a community, and some coverage of maritime law.

(e) Music Department
Present - no orientation toward oceanology
Planned - emphasis will be put on music about the ocean such as sailor songs and Debussy's "La Mer".

(f) Department of Foreign Languages
Present - no orientation toward oceanology
Planned - emphasis will be placed on selected readings in French about the ocean; the possibility of adding the Portuguese language will be studied.

(g) Industrial Art Department
Present - students draw and build lobster traps; repair rakes and tongs for shell fishing; repair and build parts for boats; and build anchors, boat trailers, and moorings
Planned - emphasis will be placed on an expanded program in wood and metal working and graphic arts oriented toward oceanology.

(h) Department of Instructional Technology
Present - the audiovisual library has four film strips and six sets of slides about the ocean.
Planned - the audiovisual library will be expanded on oceanology resource material to support all other departments in the school.

(i) Guidance Department
Present - no special orientation toward oceanology
Planned - emphasis will be placed on the many new careers developing in oceanology and college courses in oceanology programs will be featured.

(j) Library
Present - The high school library now has 30 books directly related to oceanology
Planned - an additional 50 books on oceanology will be purchased and other ocean publications added to the library.

(k) Department of Home Economics
Present - no special orientation towards oceanology
Planned - the art of preparing sea foods will be emphasized for both boys and girls.

(l) Social Studies Department
Present - no special orientation toward oceanology
Planned - emphasis will be placed on the physical, economic, and political geography of the oceans, the history of the oceans effect on man, the history of the Narragansett Bay region, and the economics of ocean industries and pollution control.

(m) Department of English
Present - no special orientation towards oceanology
Planned - there will be theme center studies of literature related to the sea.

(n) Special new programs planned
(1) Install a large world relief map on a wall in the high school.
(2) Initiate a Naval Junior ROTC unit.
(3) Conduct school sponsored field trips to local facilities such as:

Newport Naval Base
Naval Underwater Weapons Research and Engineering Station
Naval War College
Raytheon (Submarine Signal Division and Ocean Systems Center)
Pearson Yacht Division
Shipyards, Marinas, and Yacht Clubs
Coast Guard Stations
Middletown School Planetarium
Newport Naval Museum
Newport Historical Society (Marine Display)

(4) Conduct school sponsored field trips to nearby installations such as:
Marine Museum of Fall River, Mass.
University of Rhode Island - Narragansett Bay Campus
Woods Hole Oceanographic Institution and Marine Biological Laboratory
Woods Hole, Mass.
Whaling Museum, New Bedford, Mass.
U. S. Coast Guard Academy and U. S. Navy Submarine Base, New London, Conn.
New England Aquarium, Boston, Mass.
Oceanographic Education Center, Falmouth, Mass.
Heljen Corporation, Bristol, R. I.
Electric Boat Division, New London, Conn.

(5) Establish a marine museum in the high school
(6) Organize a student chapter of the American Littoral Society
(7) Establish a film and lecture series for the community
(8) Arrange for superior students to attend a National Science Foundation Summer Institute in Oceanography.
(9) Send selected students and faculty members to the Hurricane Island Outward Bound sea school in Maine for 26 day course about the ocean.
(10) Allow selected students to take a formal oceanology course through independent study.
(11) Encourage the Portsmouth Free Library to feature oceanology materials.

RESULTS AND DISCUSSION

The results of the planned project were in the operations of the plans and the findings both objective and subjective. The results of the operational plan for the school departments were:

(a) Department of Mathematics:
The applied problems in general mathematics were connected with marine industries.

(b) Art Department:
Ten art students went on a field trip to the Narragansett Bay Campus of the University of Rhode Island to see the Department of Oceanography. As a result of this trip art students had their own projects of creating art objects by mounting various kinds of seaweed on herbarium paper. Art students were inspired in doing many seascapes.

(c) Science Department:
The department profited most from the oceanology project in that the interest created by science students in the visit to the New England Aquarium in Boston spread to other students in the high school and eventually approximately 75% of the students visited the New England Aquarium. Thirty students in the Advanced Biology Class visited the Woods Hole Oceanographic Institution at Woods Hole, Mass., and were briefed by scientists there. A group of 10 science students visited the Department of Oceanography at the University of Rhode Island with 10 art students in hope that the students could make a definite proposal to the School Committee for having a marine motif for the school courtyard. The students has many ideas for the courtyard including the covering of it with a plastic dome so that it could contain a large salt-water aquarium, marine museum, and lounge area for the seniors. For reasons unknown the students never made a formal proposal to the school authorities. The head of the science department reported that because of the oceanology project a new interest

and cooperation developed in the marine biology course to the extent that most students took a personal interest in the salt water aquarium. This interest manifested itself by students for the first time taking salt-water specimens home to care for them during school vacations.

(d) Business Department:

In cooperative work programs the business students working at the Newport Naval Base increased from five to nine and students working at the Heljen Corporation in nearby Bristol, R.I. increased from zero to four. Heljen manufactures salt-water aquaria and ships lobsters throughout the United States and overseas. The employment of students at Heljen was solely due to the oceanology project. For the typing classes the speed-timed writing was changed from the standard copy to exposition about the oceans of the world.

(e) Music Department:

Instruction in music classes that formerly has used various sounds such as everyday noises changed to using a tape of sounds from the sea. The tape was prepared by the Department of Instructional Technology from a record prepared by the Submarine Signal Division of Raytheon Corporation.

(f) Department of Foreign Languages:

The head of the department gave his support to the oceanology project and although no specific changes in the foreign language curriculum occurred, the department head felt that interest was growing in the offering of Portuguese as a foreign language. Portuguese is the largest ethnic group in Portsmouth.

(g) Industrial Art Department:

This department had mini-projects to expand its programs in woodworking, metal working, and graphic arts towards oceanology. A new program was for four students to tour Raytheon facilities in Portsmouth and Newport at the beginning of the school year. The students were impressed by the former industrial art students at Portsmouth High School who were now using skills learned in high

school in their work at Raytheon. Another new activity was the visit of industrial art students to the Bethlehem Shipyards in Quincy, Mass. This activity was canceled by the shipyard because of a strike.

(h) The Department of Instructional Technology:

The Director of this Department gave enthusiastic support to all other departments and to students in the oceanology project. He obtained a set of colored oceanography study prints and mounted them on the walls of the school hall in one wing of the building and obtained four additional sets of slides on the ocean to be used in classroom instruction.

(i) Guidance Department:

The guidance department reported a significant increase in interest by students reference careers in oceanology. (This interest was no doubt caused by the excellent student reaction to the trip to the New England Aquarium.) For the first time students, a total of eight, specifically requested that a course in oceanology be offered in summer school at Portsmouth High School. One student from another school district asked to transfer to Portsmouth in order to take advantage of the oceanology project.

(j) Library:

The librarians established one section of special shelves solely for oceanology library materials. The thirty books concerned with oceanology that previously were in the library were transferred to the new oceanology section and the number of books expanded to ninety four volumes. Additionally, 120 pamphlets, periodicals, and magazines concerning the ocean were added to the library collection. Creative colored pictures stressed the emphasis on the oceanology reference section. The librarians reported that the average book in the oceanology section was checked out three times. The oceanology section is a permanent part of the Portsmouth High School Library and will be expanded as many bulletins and other publications reach the library from various mailing lists. Because of the demand for oceanology books the librarians will acquire books through the normal budget.

(k) Department of Home Economics:
The head of the department of home economics gave full support to stressing the art of preparing different kinds of fish and added to the curriculum ways to preare lobster. Interest among girl students was high. Boys are still not allowed to take home economics.

(l) Social Studies Department:
The Head of the Department and the Director of the Project attended a briefing on the Naval Electronic Simulator to find uses in social studies. A member of the social studies faculty was a speaker on the Oceanology Lecture Series and the head of the department gave active support toward getting the attitudinal questionnaire accepted by other department heads.

(m) Department of English:
The head of the department reported no change in orientation but that the oceanology project had not harmed her department.

Results of School activities designed to interest students in their environment were the following:

1. On September 30, 1969, Mr. James Hain of the staff of the University of Rhode Island School of Oceanography gave an hour-long lecture (with colored slides) on oceanology to all students (grades 7 through 12) in a school assembly program.
2. In December two bus loads of juniors and seniors went to the New England Aquarium in Boston where they had a lecture on water and a tour of the museum. This trip was so enthusiastically received by the students and faculty advisors on the trip that bus trips were planned throughout the rest of the school year so that all students and faculty could visit the aquarium. (In the Spring, however, after approximately 75 percent of the students had been to the aquarium the trips stopped abruptly when the school determined that the buses had to be used for athletic purposes.)
(See Annex V for sample publicity.)
3. Beginning in October the first lecture series was given at Portsmouth High School. This Oceanology Lecture Series held in the Portsmouth High School Auditorium was given publicity through display advertising in the

Newport Daily News and by Large posters placed in schools and businesses on Aquidneck Island. The series was open to the public without charge and included:

(a) Sunday, October 12, 6:45 p.m.
The Honorable Claiborne Pell-United States Senator "The Challenge of the Seven Seas."

(b) Monday, November 24, 7:30 p.m.
Mr. Victor St. Laurent, Teacher of Social Studies Portsmouth High School, "The Sea-Going Traditions of Aquidneck Island."

(c) Tuesday, January 6, 7:30 p.m.
Mr. Jacob Dykstra, President, Point Judith Fisherman's Cooperative "Rhode Island's Commercial Fishing Industry."

(d) Wednesday, March 4, 7:30 p.m.
Mr. Alfred L. Hawkes, Executive Director, Audubon Society of Rhode Island "The Wise Use of our Coastal Areas."

(e) Thursday, April 16, 7:30 p.m.
Mr. Norris D. Hoyt, Ph.D. Chairman, Department of English, St. George's School "Yachting Out of Newport-America's Cup Races."

Approximately 75 persons attended each of the oceanology lectures.

4. To develop interest in the Outward Bound Program promotional material and newspaper feature articles were placed on school bulletin boards. A film on the Hurricane Island Outward Bound School in Maine was shown to all boys in the Junior Class and after the showing twenty boys indicated an interest in going to the school. This number shrank to ten students who were then evaluated by school authorities. Either because of lack of interest or because of prior commitment no faculty member was available to attend Outward Bound School in the summer of 1970. Hence three students were chosen along with three alternates. The selection decision was a difficult one for all ten boys were well qualified. The first three selected attended the Hurricane Island Outward Bound School in Maine from July 15 to August 11, 1970.

The Outward Bound School in Maine is one of seven Outward Bound schools throughout the United States, but it is the only one which uses the sea to teach its students to serve and strive but not to yield. It is a survival school for both high school teachers and students in which they face the dangers and hardships of the sea to

gain a greater sense of self reliance and a more profound feeling of inner strength. The 26 day course is rugged and many students fail to complete it successfully.

All three students from Portsmouth High School successfully completed the Outward Bound School and were interviewed by the project director upon their return. All three were especially enthusuastic over their Outward Bound experience and each exuded a confidence not apparent before their selection. All three are leaders in the Class of 1971 plus being co-captains of the football team and captain of the soccer team. The three students in the interview were anxious to speak of their experiences, were firm in their resolve that Portsmouth High School would be a much better school if certain administrators and faculty members were exposed to Outward Bound training, and were pleased that each of them had talked to over a hundred other young people about the Outward Bound experience. They felt that other boys in Portsmouth High School would go to Hurricane Island in 1971. As of January 1971, the three Outward Bound students had not been given the opportunity to speak at any student assembly program.

The results of activities outside of any specific department that were not fulfilled was as follows:

(a) The plan to install a relief map of the world on a wall in the school did not materialize because the map desired was found to be faulty in manufacture.

(b) Approval was obtained from the school committee to have a Naval Junior ROTC program at Portsmouth High School in 1971 and a representative of the Department of the Navy in Washington, D.C. inspected the facilities of Portsmouth High School in response to the formal application to establish an ROTC unit. Final approval is still pending at the Department of the Navy.

(c) Efforts to establish a marine museum, to organize a junior chapter of the American Littoral Society, to have students attend a National Science Foundation Summer Institute in oceanology, and to have students take a formal course in oceanography through independent study were not disapproved by any school authorities, but due to lack of time were not implemented.

Results not foreseen at the beginning of the project but which are somewhat related to it are:

(a) The director of the oceanology project wrote to the Governor of Rhode Island recommending that the words "Discover Rhode Island" on the state license plates be deleted and the words "Rhode Island - The Ocean State" be substituted thereon. The reply from the Governor stated that the suggestion would receive study. A few months later a large sign was erected on expressway Route 24 as it nears Portsmouth on the Massachusetts - Rhode Island border which read - "Welcome to Rhode Island - The Ocean State."

(b) The oceanology project initiated the idea of establishing a community foundation with the purpose of supporting experimental educational projects. The result was the establishment of The Portsmouth Foundation.

(c) The extensive correspondence with industry, follow ups from news items about oceanology in other schools, and correspondence with government agencies resulted in many free publications including content material for elementary science curricula concerned with the ocean. As a result of the latter, two elementary school principals in Portsmouth became especially interested in orienting the elementary curriculum towards oceanology.

(d) The oceanology project was a factor in causing the principal investigator to become an educational consultant in order to see whether he could influence schools and students to meet the tides of change. He believes that young people are, as Marshall McLuhan tells us, more concerned with simultaneity than linearity, and with all-at-onceness, not sequence.

(e) The principal investigator became a consultant to St. George's School on Aquidneck Island for planning its own oceanology program.

Attitude and Informational Questionnaire

The attitude questionnaire was administered twice; first in January (See Annex IV) and then again at the end of the school year in May (See Annex VI). The detailed response data [1] for the pre and post administrations of the questionnaire are presented in Tables 2 and 3, respectively.

[1] The data for grade 12 students at the end of the year are unreliable due to the fact that only 17 graduating seniors, 4 males and 13 females completed the questionnaire.

An analysis of the comparative responses follows:

Item 1. To what extent do you believe there is an emphasis on sports in this school?

Analysis: On both administrations students felt that emphasis was just about right. No differences between male and female responses and among grade levels were noted.

Item 2. Describe the situation with regard to the opportunity students have to participate in extra classroom activities.

Analysis: There was general consensus that a large number of opportunities was available.

Item 3. To what extent do you believe there is an emphasis on cultural events in this school?

Analysis: At the beginning of the school year, there was general agreement among male and female students at all levels that there was too little emphasis. By the end of the year the attitude tended to shift toward "just right".

Item 4. Do you feel students in your school have ample opportunity to participate in making changes in student government, activities and student body activities?

Analysis: On both occasions there was general consenus that these activities are run pretty much by the most popular students.

Item 5. How valuable and useful do you consider your participation in student activities to be?

Analysis: A persistent opinion that these activities have some value was noted. There were no grade level and sex differences.

Item 6 What is the average number of hours per week you spend on extra-curricular activities?

Analysis: Throughout the school year there was a strong indication that a majority of the students were spending very few, if any, hours in extra-curricular activities.

Item 7. What is the average number of hours per week you spend in out-of-class study?

Analysis: The students, in general, claimed to be spending as few hours in out-of-class study as they were spending in extra-class activities.

Item 8. To what extent do you feel the need for more personal attention on such matters as selecting courses, going to college, getting a job?

Analysis: Both at the beginning and at the end of the school year, there was a general feeling among the 11th and 12th graders that they would like to be able to talk to someone more often than they were experiencing.

Item 9. To what extent has the counseling and guidance you received in this high school been helpful to you?

Analysis: A very definite consensual judgement that these services were merely of "some" help was noted.

Item 10. About how often do teachers require you to use the school library for supplementary reading?

Analysis: There was strong, consistent agreement that the teachers were requiring the students to use the library hardly at all.

Item 11. To what extent are teachers available and willing to give you outside help on your studies?

Analysis: Students were in general agreement that their teachers were usually available and willing.

Item 12. How would you describe the standards(expectations) set by your teachers?

Analysis: On both administrations the students were nearly equally divided between "somewhat difficult" and "about right".

Item 13. How adequate is the supply of supplementary reading materials (other than textbooks) of the library for serving your special interests and needs?

Analysis: A general feeling prevailed that the material could not always be located.

Item 14. What statements best decribe your feeling about going to school each day?

Analysis: Throughout the school year, the students, in general, reflect an indifferent attitude towards going to school.

Item 15. In general, to what extent do the subjects you are now taking seem meaningful for your future interests and needs?

Analysis: Overall, male and female students tend to agree that the subject matter is somewhat related. However, there was some variability noted, by grade level.

Item 16. If you could be most remembered here at school for any one of three things (1) leader in activities; (2) most brilliant student; (3) most popular with others, which would it be?

Analysis: The data reveal that there is no question that the students at all grade levels would prefer to be remembered for having been the most popular.

Item 17. How would you rate the educational opportunities offered by your high school in regard to preparation for college or for a job, if not college-bound?

Analysis: The general consensus rated the educational opportunities average.

Item 18. (See Tables 4, 5 and 6)

Item 19. What is your reaction to the criticism sometimes made of high schools that too much emphasis is placed on grades?

Analysis: Students consistently varied between "agree" to "strongly agree".

Item 20. To what extent are students given freedom and unscheduled time in which they are able to decide from a variety of learning opportunities?

Analysis: Students indicated they felt there was too much regimentation.

Item 21. How satisfied are you thus far with your academic achievement in high school?

Analysis: Students were divided in their opinions between "satisfied" and "somewhat dissatisfied".

Item 22. (See Tables 7 and 8)

Item 23. (See Tables 9 and 10)

Item 24. What is your impression of the quality of teaching at Portsmouth High School?

Analysis: General consistent impression of the students was that the quality of teaching could be improved.

Item 25. Would you like to see a Naval Junior ROTC established at Portsmouth High School?
(Participation would be voluntary).

Analysis: Throughout the school year more students appeared to voice "no opinion" than in any other single category. However, a wide difference of opinion existed, both at the beginning and at the end of the school year.

Item 26. What is your opinion of the Portsmouth High School Student Council?

Analysis: Opinions divided between extremes.

Item 27. From what you know or have heard, of the school spirit of other high schools, what do you rate the spirit at Portsmouth High School?

Analysis: Ratings generally ranged from "above average" to "below average".

Item 28. How do you evaluate the Guidance Department of Portsmouth High School?

Analysis: General evaluation was from "fair" to "good".

Item 29. What is your opinion of the effectiveness of audio-visual teaching aids such as TV and films used at Portsmouth High School?

Analysis: Students generally tended to agree that they aid instruction.

Item 30. What is your reaction to Portsmouth High School's receiving a grant from the U.S. Office of Education to find the reaction of high school students to a curriculum oriented toward oceanology?

Analysis: Most students tended to think it was a good idea on both occasions. However, a significant portion preferred to reserve judgement.

Item 31. What is your rating of the September assembly program on oceanology?

Analysis: Generally evaluation was "good".

Item 32. Would you like for Portsmouth High School to offer a separate course in oceanology?

Analysis: Students expressed opinion one-way or the other. There were very few with no opinion. While there was a greater tendency toward "yes" there were a significant proportion of "no's" expressed.

Item 33. Do you feel that the courses you are now taking are the correct ones for your goals?

Analysis: Students nearly equally divided among "no", "don't know", and "yes" both at the beginning and end of the school year.

Three items in the questionnaire (Nos. 18, 22 and 23) require a separate analysis. The data relative to these items are presented in Tables 4 through 10.

Item 18. Rank the five items below in terms of their importance to you on a job in the future (rank from 1-5).

_____Security of steady work
_____Opportunity for rapid rise
_____Chance to help others
_____Friendly people to work with
_____High income

Analysis: For the total student body (males and females combined) there was a preference expressed across all grade levels, for job security. There was also general agreement among the students that what they would least expect to seek in employment beyond high school would be opportunity for rapid rise. These same general trends were found for male students alone. However, the female students were apparently more altruistic in their preferences. Along with job security they seemed to favor the chance to help others, and friendly people with whom to work.

By and large, the same trends were noted both at the beginning and at the end of the school year attesting to the validity of the student's convictions.

Item 22. Does your school offer all the subjects you would like to take in High School?

_____ Yes
_____ No

If your answer is no, list those courses you would like to take.

Analysis: Data on this item were available only for the first administration of the questionnaire. These data are presented in Tables 7 and 8.

For total students, those who responded to the effect that the present curriculum was not accommodating their needs and/or interests, there was a significant expression of opinion that courses of a vocational-industrial nature would be desirable. Thirty percent responded to this effect. This was followed by an expressed request for the introduction of courses in Mathematical Sciences and Computers (15%), Behavioral Sciences (13%), and Foreign languages (11%).

When these data are broken down between male and female student responses, the following differences were noted: the male students far exceeded the female student courses (73 males to 18 females); there was a slight preference on the part of males for courses in the Behavioral Sciences (27 males to 18 females); females to 9 males).

Item 23. Rank the eight subject areas listed below placing a 1 by the subject that interests you most, an 8 by the one that interests you least, etc.

_____ English
_____ Foreign Language
_____ Mathematics
_____ Social Studies
_____ Music
_____ Science
_____ Industrial Arts/Home Economics
_____ Business Education

Analysis: The students, in general, seemed to favor courses in English (particularly, seniors). Among the other most popular courses are those in the social studies. However, the differences among ranks were not substantial, and for the remaining six subject-matter areas, the expressed interest levels were reasonably equal.

When the data of Table 10 were broken down by sex it becomes apparent that the girls were substantially more interested in English courses than boys are, while there appears to be a greater tendency for the boys to have favored courses in the Social Studies.

Factor Analysis of the Questionnaire:

The attitudinal and informational questionnaire was subjected to a Principal Components Factor Analysis. The correlation matrix upon which the factor analysis was applied was developed from thirty of the thirty-three items in the questionnaire (excluding items Nos. 18, 22, and 23) which are based on interval scales from which Pearson Product-Moment correlations among the $\frac{n\,(n-1)}{2}$ pairs of items could be calculated. The resulting factor matrix was subjected to a varimax rotation of the first seven factors which were found to account for 44% of the total variance. The rotated factor matrix is presented in Table 11. These data are based on the 632 responses to the questionnaire given by the total sample of subjects to which it was administered in the Fall of 1970. The first seven factors yielded a rather clear-cut structure. An item was considered to be significantly correlated with a factor if its absolute factor loading reached a value of .40. All, but one of the thirty items (Item No. 19) met this criterion. No item correlated at least ±.40 with more than one factor. The definitions of the factors are given below.

In the light of the foregoing it becomes apparent that the attitudinal and informational questionnaire was quite comprehensive covering the major aspects of the activities and concensus of high school students.

Definition of Factors

I = Personal Attention & Counseling
II = Academic Standards and Scholastic Program
III = Extra-Curricular Activities & Supplementary opportunities
IV = Student Activities, including Sports
V = Innovative or Unusual Programs
VI = Student Government & Cultural Studies
VII = Independent Study

CONCLUSION

From the results obtained one can conclude that everything that was planned was not accomplished, but on the other hand there was a great proportion of the objectives that was achieved in spite of the unforseen resistance to the project by heads of certain academic departments. No research project can guarantee world-shaking results, but in the opinion of the Portsmouth School Committee, Superintendent of Schools, Director of the Project, and the large majority of the heads of academic departments the oceanology project was a success.

The main difficulty in getting the Portsmouth oceanology project going was the resistance within the school itself by about half of the heads of the academic departments. This resistance, however, dwindled over the year until at the completion of the project only two or three persons had no interest in it. Furthermore, in January of 1970, the Director of the Project was given the additional duty of being principal of a new elementary school in Portsmouth and consequently he had less time to spend in the high school to work with these heads of departments who felt threatened by a new project in their school. Regardless of the subtle resistance by some faculty members, no faculty member interviewed at the completion of the project felt that Portsmouth High School or their department had been harmed by the project.

Of the original four objectives the pre and post questionnaires given in January and May showed no significant change in the objectives. The subjective opinions of the heads of the academic departments and the extensive use of the oceanology library materials indicate that the curriculum was somewhat more relevant and that students were aware of their environment. The opinions of the guidance department indicate that students are becoming more aware of career opportunities in oceanology. An overall subjective judgement is that the esprit-de-corps of Portsmouth High School is still high.

The Principal of Portsmouth High School evaluated the oceanology project as being too large, involving too many people, having too little time, and not having enough money. He felt that the project failed in its objectives. This opinion was a unique one in the school.

RECOMMENDATIONS

The recommendations are that:

1. The concept of orienting a school curriculum to a school's environment be planned in a research proposal in another secondary school.

2. The director of any future projects similar to the one at Portsmouth High School spend all his time on the project and have his office located in the project school.

Appendix

PORTSMOUTH HIGH GETS FIRST OCEANOLOGY GRANT

The Portsmouth School Department has been granted a research fund of $9,950 for development of a curriculum oriented toward oceanology for the 1969 - 70 school year.

This is the first research grant to any school system in the state under Title IV of the Elementary and Secondary Education Act.

Robert S. Day, coordinator of grants for the department, was praised last night by the School Committee. School Supt. Roland F. Shappy was praised for his work in obtaining the grant to conduct a study to make students more aware of their environment near the ocean and the opportunities it offers. The study will be conducted at the high school with the cooperation of department heads, to orient the high school curriculum towards oceanology.

There will be school - sponsored field trips to local points of interest concerned with oceanology, a film and lecture series on ocean resources of the state. It will include sending a teacher and two selected boys where at least 16½ to the Outward Bound Hurricane Island School in Maine next summer. The boys probably would be juniors, and their experiences would be related to the school. Plans also are being made to establish a Naval Junior ROTC at the high school.

Day said one goal of the project is to have Portsmouth High School known as the school which has a curriculum oriented toward oceanology.

He said he planned to bring phases of the program into elementary areas. If a teacher and the students are willing to pay part of their expenses to the Outward Bound School, it would enable additional men and boys to participate. The program will be conducted entirely with federal funds.

NEWPORT DAILY NEWS

ANNEX I

Portsmouth Wins Grant
For Curriculum Innovation

The Portsmouth school department has received a special 9,950 federal grant to orient its entire high school curriculum toward the study of oceanography.

The grant, awarded through the state Department of Education as a research project, is the first of its kind to be presented to a Rhode Island school. According to school officials it will also make the Portsmouth High School the only one in the country to orient its courses toward the study of local environment.

The announcement of the grant was made last night at the regular meeting of the Portsmouth School Committee.

Col. Robert Day, USA (ret.), coordinator of grants for the school system, said the new program will be an attempt "to make the curriculum more relevant to the environment."

He explained that the courses at the high school won't be changed but that they will be all used to emphasize oceanography.

"After all this is Rhode Island's only natural resource," he said.

He explained that under the new program, courses as diverse as art, social science and history can be used to show the wide-ranging effects and potential of the oceans upon man's life. Students in art courses will use the products of the sea for artistic creations. Students in other courses will study how the seas affected history.

"We'll see how creative the teachers are and how they can find ways to demonstrate the importance of oceanography in the courses," Colonel Day said. He also said that money will be appropriated for other field trips and projects.

PROVIDENCE JOURNAL
June 27, 1969

Revision Copy

Fall 1969

STUDENT QUESTIONNAIRE

Portsmouth High School

The purpose of this questionnaire is an attempt to learn something of the attitudes of students toward their school.

You are an expert on being a student at Portsmouth High School. We would like to ask your opinion and feelings on the following items concerning your school and community. Since the major portion of the budget of the Town of Portsmouth is spent on youth, and in order to make this investment the wisest possible, we hope that you will give thoughtful consideration to your replies. Your ideas may be considered in the future in determining school programs and policies. Our goal is for Portsmouth High School to continue to play for the needs of all the children in our educational system. Please answer all questions. You will not be identified with your answers.

1. I am now in grade: _____7
   _____8
   _____9
   _____10
   _____11
   _____12

2. This is my--1st;___2nd; ___3rd; ___4th; ___5th; ____6th year at Portsmouth High School.

3. I am_____male
   _____female

4. Do you feel that you would like to be a teacher?
   ____definitely yes
   ____probably yes
   ____no opinion
   ____probably no
   ____definitely no

5. Why do you feel the way you do about your answer to question 4?

_____

_____

_____

6. If your answer to question 5 is yes, would you prefer to teach in:
   ____elementary school
   ____Middle school
   ____secondary school
   ____college
   ____other such as business, industry,armed forces, technical institute.

7. Please check your impressions of the quality of teaching in the following departments at Portsmouth High School in which you have taken courses.

	Excellent	Good	could Be Improved
Art	____	____	____
Business	____	____	____
English	____	____	____
Foreign Language	____	____	____
Guidance	____	____	____
Home Economics	____	____	____
Industrial Arts	____	____	____
Mathematics	____	____	____
Music	____	____	____
Physical Education	____	____	____
Science	____	____	____
Social Studies	____	____	____

8. Please elaborate on your answers to question 7._____

_____

_____

_____

9. What do you think should be done to improve the quality of teaching?

_____

_____

_____

10. Tiverton has the only Naval Junior ROTC Unit in Rhode Island. Would you like to see a Naval Junior ROTC established at Portsmouth High School? Participation would be voluntary.

____definitely yes
____probably yes
____no opinion
____probably no
____definitely no

11. Why did you reply the way you did to question 10?_____

_____

_____

12. Please indicate your interest in the subject matter taught in the following departments at Portsmouth High School:

	Definitely Am Interested	Lukewarm	Definitely Not Interested
Art	____	____	____
Business	____	____	____
English	____	____	____
Foreign Language	____	____	____
Home Economics	____	____	____
Industrial Arts	____	____	____
Mathematics	____	____	____
Music	____	____	____
Physical Education	____	____	____
Science	____	____	____
Socia Studies	____	____	____

13. Why did you reply the way you did to question 12?_____

_____

_____

_____

14. I think that the Portsmouth High School Student Council:

____adequately represents the feelings of the student body

____does neither harm nor good

____tries to please the administration

15. Explain by examples your answer to question 14._____

_____

_____

16. The following is a sample of topics that are now discussed in relevant classes in school. Which topics do you feel should be discussed more?

	Definitely YES	probably YES	No Opinion	Probably NO	Definitely NO
War in Vietnam	----	----	----	----	----
Violence in Society	____	____	____	____	____
Dress Regulations PHS	____	____	____	____	____
National,State & Local Politics	____	____	____	____	____
Rights of Minority & Majority Groups	____	____	____	____	____
Sex Education	____	____	____	____	____
The School Budget	____	____	____	____	____
Voting Age	____	____	____	____	____
Discipline at PHS	____	____	____	____	____
Use of tobacco & smoking regulations	____	____	____	____	____
School vandalism	____	____	____	____	____
Censorship of school publications	____	____	____	____	____
Educational reforms at PHS	____	____	____	____	____
Moral & ethical values	____	____	____	____	____
Use of drugs	____	____	____	____	____
School spirit	____	____	____	____	____
PHS Athletic program	____	____	____	____	____
_____ other	____	____	____	____	____
_____ other	____	____	____	____	____

17. Please relate why you feel strongly about your answers to question 16.

_____

_____

_____

18. For those items marked "yes" in question 16, indicate the priority in which you would like to discuss them:

1.
2.
3.

19. Please indicate your opinion of the difficulty of the work in the following departments at Portsmouth High School in which you have taken courses.

	Difficult	"So-so"	Easy
Art	____	____	____
Business	____	____	____
English	____	____	____
Foreign Language	____	____	____
Home Economics	____	____	____
Industrial Arts	____	____	____
Mathematics	____	____	____
Music	____	____	____
Physical Education	____	____	____
Science	____	____	____
Social Studies	____	____	____

20. Why did you answer question 19 as you did?_____

_____

_____

_____

21. From what you know, or have heard, of the school spirit of the other high schools, would you say that the spirit at Portsmouth High School is:

____extremely high
____above average
____below average
____poor

22. Please give examples to support your answer to question 21._____

_____

_____

_____

23. If you were to rate the Guidance Department of Portsmouth High School, would you evaluate it as:

____excellent
____good
____average
____below average(fair)
____poor

24. Please give an example to support your answere to question 23.

_____
_____
_____

25. If you were principal of Portsmouth High School, the first thing you would change to improve the school would be to:_____

_____
_____

26. What additional course, or courses, would you prefer to have at Portsmouth High School to enrich your high school experience?

_____
_____
_____

27. My idea of an interesting, different, and new educational research project to carry out at Portsmouth High School would be to:_____

_____
_____
_____

28. If you had complete freedom of choice of where you went to high school, which of the following would you choose:

____Portsmouth High School
____Another high school in R.I.
____A high school outside R.I.

29. Why did you select your answer to question 28?_____

_____
_____

30. Your opinion of the effectiveness of audiovisual teaching tools such as TV and films as used at PHS is that:

____they definitely aid instruction
____they do not effect me one way or the other
____they are overused to the extent that they detract from good instruction

31. Please give examples of how and/or why you reacted as you did to question 30._____

_____
_____
_____

32. If you planned to take a foreign language, indicate the priority you would give to the following foreign languages if all were offered:

____Chinese
____French
____German
____Italian
____Latin
____Portugese
____Spanish

33. Would you like to rate each of you teachers on his, or her, effectiveness as a teacher?

____definitely yes
____Probably yes
____no opinion
____probably no
____definitely no

34. In what manner would you suggest that you rate your teachers?

_____

_____

_____

35. Do you favor the idea of involving students with questionnaires?

____Yes
____No-
____It might be worth the effort

36. Why did you answer question 35 as you did?_____

_____

_____

37. Portsmouth High School has received a grant for a research program orienting the curriculum toward oceanology. My reaction to this experimental project is:

____Ithink it is a good idea
____I'll reserve decision until I know more about the program
____I do not know what oceanology is
____I am pessimistic about the value of using students in any experimental program

38. Would you like for PHS to offer a separate course in oceanology?

____yes
____no
____no opinion

39. My rating of the first assembly program on oceanology would be:

___excellent
___good
___average
___less than average
___poor

40. Indicate what you feel should be provided for the teenagers of the Town of Portsmouth:_____
_____
_____
_____

41. Do you feel that the courses you are now taking are the correct ones for your goals?

___yes=
___no
___don't know

42. Do you feel that you should be allowed to take more electives?

___yes
___no
which ones?_____
_____
_____
_____

STUDENT QUESTIONNAIRE

PORTSMOUTH HIGH SCHOOL

Directions: Yourare asked to furnish information about your experiences in and reactions to this school. Place an "X" in the blank opposite your response. Make only one mark unless otherwise directed.

Circle One					
	Grade:	9	10	11	12
	Sex:	F	M		
	Average Grade:	A	B	C	D

1. To what extent do you believe there is an emphasis on sports in this school?

1_____ Too much emphasis
2 _____ About right
3 _____ Too little emphasis

2. Which of the following best describes the situation with regard to the opportunity students have to participate in extraclassroom activities?

1_____ All or nearly all students can participate
2 _____ A large number can participate
3 _____ Only a few students have the opportunity

3. To what extent do you believe there is an emphasis on cultural events (concerts, drama, art displays, prominent speakers) in this school?

1_____ Too much emphasis
2 _____ About right
3 _____ Too little emphasis

4. Do you feel students in your school have ample opportunity to participate in making changes in student government, activities, and student body procedures?

1 _____ Most students have ample opportunity
2 _____ Students have little freedom to make changes because of faculty control
3 _____ Student government and activities are run by a few of the most popular students.

5. How valuable and useful do you consider your participation in student activities to be?

1 _____ Of little or no particular use or value
2 _____ Perhaps of some value
3 _____ Valuable and useful
4 _____ Very valuable and useful

6. What is the average number of hours per week you spend on extra curricular activities?

1 _____ None
2 _____ 1 to 4
3 _____ 5 to 10
4 _____ 11 to 20
5 _____ more than 20

7. What is the average number of hours per week you spend in out-of-class studey?

1 _____ None
2 _____ 1 to 4
3 _____ 5 to 10
4 _____ 11 to 20
5 _____ more than 20

8. To what extent do you feel the need for more personal attention on such matters as selecting courses, going to college, getting a job?

1 _____ I would like to be able to talk to someone more often than I can now
2 _____ Someone is usually available when I need to discuss such matters
3 _____ Someone is always available when I need to discuss such matters

9. To what extent has the counseling and guidance you received in this high school been helpful to you?

1 _____ Extremely helpful
2 _____ Some help
3 _____ Very little help
4 _____ Not helpful at all
5 _____ Haven't received any in this school

10. About how often do teachers require you to use the school library for supplementary reading?

1 _____ Practically every day
2 _____ Once a week
3 _____ 2 or 2 times a month
4 _____ Less often

11. To what extent are teachers available and willing to give you outside help on your studies?

1 _____ Seldom or never
2 _____ Occasionally
3 _____ Usually when needed
4 _____ Whenever it is needed

12. How would you describe the standards (expectations) set by your teachers?

1 _____ Much too difficult
2 _____ Somewhat difficult
3 _____ About right
4 _____ Somewhat easy
5 _____ Much too easy

13. How adequate is the supply of supplementary reading materials (other than textbooks) of the library for serving your special interests and needs?

1 _____ All materials are available
2 _____ Usually materials needed can be located
3 _____ Frequently materials are not available
4 _____ Library sources are very inadequate

14. Which of these statements best describes your feeling about going to school each day?

1 _____ Always look forward to it with enthusiasm
2 _____ Usually look forward to it with enthusiasm
3 _____ Frequently am indifferent about it
4 _____ Very often dread the prospect of school
5 _____ Always dislike having to go to school

15. In general, to what extent do the subjects you are now taking seem meaningful for your future interests and needs?

1 _____ Considerably
2 _____ Somewhat
3 _____ Most seem unrelated

16. If you could be most remembered here at school for any one of three things below, which onw would you want it to be?

1 _____ Leader in activities
2 _____ Most brilliant-best student
3 _____ Most popular with others

17. How would you rate the educational opportunites offered by your high school in regard to preparation for college (or for a job if you are non-college bound)?

1 _____ Very inferior
2 _____ Inferior
3 _____ Average
4 _____ Good
5 _____ Very good

18. Rank the five items below in terms of their importance to you on a job in the future (rank from 1 to 5)

_____ Security of steady work
_____ Opportunity for rapid rise
_____ Chance to help others
_____ Friendly people to work with
_____ High income

19. What is your reaction to the criticism sometimes made of high schools that too much emphasis is placed on grades (marks)?

_____ Strongly agree
_____ Tend to agree
_____ Tend to disagree
_____ Strongly disagree

20. To what extent are students given freedom and unscheduled time in which they are able to decide from a variety of learning opportunities (using library, labs, seeing teachers, etc.)?

1 _____ There is too much freedom and laxity
2 _____ About right amount is provided
3 _____ There is little freedom, much regimentation

21. How satisfied are you thus far with your academic achievement in high school?

1 _____ Thoroughly dissatisfied
2 _____ Somewhat dissatisfied
3 _____ Satisfied
4 _____ Thoroughly satisfied

22. Does your school offer all the subjects you would like to take in high school?

1._____ Yes
2 _____ No If your answer is no, list those courses you would like to take:

_____

23. Rank the nine subject areas listed below placing a 1 by the subject that interests you most, a 9 by the on that interests you least, etc.

_____ English
_____ Foreigh language
_____ Mathematics
_____ Social Studies
_____ Music
_____ Science
_____ Industrial Arts/Home Economics
_____ Business Education

24. What is your impressions of the quality of teaching in Portsmouth High School?

1 _____ excellent
2 _____ good
3 _____ could be improved

25. Would you like to see a Naval Junior ROTC established at Portsmouth High School? (Participation would be voluntary)

1 _____ definitely yes
2 _____ probably yes
3 _____ no opinion
4 _____ Probably no
5 _____ definitely no

26. What is your opinion of the Portsmouth High School Student Council?

1 _____ it adequately represents the feelings of the student body
2 _____ it does neigher harm nor good
3 _____ it tries to please the school administration

27. From what you know or have heard, of the school spirit of other high schools, what do you rate the spirit at Portsmouth High School?

1 _____ extremely high
2 _____ above average
3 _____ below average
4 _____ poor

28. How would you evaluate the Guidance Department of Portsmouth High School?

1 _____ excellent
2 _____ good
3 _____ average
4 _____ fair
5 _____ poor

29. What is your opinion of the effectiveness of audio-visual teaching aids such as TV and films used at Portsmouth High School?

1 _____ they definitely aid instruction
2 _____ they do not affect me one way or the other
3 _____ they are over-used to the extent that they detract from good instruction

30. What is your reaction to Portsmouth High School's receiving a grant from the U. S. Office of Education to find the reaction of high school students to a curriculum oriented toward oceanology?

1 _____ I think it is a good idea
2 _____ I'll reserve decision until I know more about the program
3._____ I am pessimistic about the value of using students in any experimental program

31. What is your rating of the September assembly program on oceanology?

1 _____ excellent
2 _____ good
3 _____ average
4 _____ below average
5 _____ poor

32. Would you like for Portsmouth High School to offer a separate course in oceanology?

1_____ Yes
2 _____No
3 ____ No opinion

33. Do you feel that the courses you are now taking are the correct ones for your goals?

1 _____ yes
2 _____ no
3 _____ dont't know

34. List the things you like most about your school. Include those things you feel are its strengths:

_____ _____

_____ _____

_____

_____ _____

35. List the things you like least about your school. Include those things you feel are its weaknesses:

PORTSMOUTH STUDENTS VISIT NEW ENGLAND AQUARIUM

On Tuesday, January 12, sixty eight Portsmouth High School science students and two science teachers visited the New England Aquarium located on historic Central Wharf in downtown Boston.

The goal of the aquarium is to make known the world of water and to further the knowledge of water as it relates to health, food, agriculture, industry, and commerce, and still make it an enjoyable place to visit. The aquarium, whose focus is on education, is the permanent secretary for a group of institutions concerned with development in oceanography. The visit by students was part of the oceanology program at Portsmouth High School.

The visit to the $5,000,000 recently opened aquarium began with a lecture on water. The students were then free to roam through the building to observe over 2,000 aquatic animals from the seven seas and the local pond. Of especial interst was a giant cylindrical glass and concrete tank containing 200,000 gallons of sea water. A ramp circles the huge ocean tank allowing visitors to observe sea life from any level

Three seals named Luigi, Simon, and Garfunkel played in their pool outside the aquarium.

Newport Daily News

ANNEX V

STUDENT QUESTIONNAIRE

PORTSMOUTH HIGH SCHOOL

Directions: You are asked to furnish information about your experiences in and reactions to this school. Place an "X" in the blank opposite your response. Make only one mark unless otherwise directed.

Circle One					
	Grade:	9	10	11	12
	Sex:	F	M		
	Average Grade:	A	B	C	D

1. To what extent do you believe there is an emphasis on sports in this school?

   1 _____ Too much emphasis
   2 _____ About right
   3 _____ Too little emphasis

2. Which of the following best describes the situation with regard to the opportunity students have to participate in extraclassroom activities?

   3 _____ All or nearly all students can participate
   2 _____ A large number can participate
   1 _____ Only a few students have the opportunity

3. To what extent do you believe there is an emphasis on cultural events (concerts, drama, art displays, prominent speakers) in this school?

   3 _____ Too much emphasis
   2 _____ About right
   1 _____ Too little emphasis

4. Do you feel students in your school have ample opportunity to participate in making changes in student government, activities, and student body procedures?

   3 _____ Most students have ample opportunity
   2 _____ Students have little freedom to make changes because of faculty control.

5. How valuable and useful do you consider your participation in student activities to be?

   1 _____ of little or no particular use or value
   2 _____ perhaps of some value
   3 _____ valuable and useful
   4 _____ very valuable and useful

6. What is the average number of hours per week you spend on extra-curricular activities?

   1 _____ None
   2 _____ 1 to 4
   3 _____ 5 to 10
   4 _____ 11 to 20
   5 _____ more than 20

ANNEX

7. What is the average number of hours per week you spend in out-of-class study?

1 _____ None
2 _____ 1 to 4
3 _____ 5 to 10
4 _____ 11 to 20
5 _____ more than 20

8. To what extent do you feel the need for more personal attention on such matters as selecting courses, going to college, getting a job?

1 _____ I would like to be able to talk to someone more often than I can now
2 _____ Someone is usually available when I need to discuss such matters
3 _____ Someone is always available when I need to discuss such matters

9. To what extent has the counseling and guidance you received in this high school been helpful to you?

5 _____ Extremely helpful
4 _____ Some help
3 _____ Very little help
2 _____ Not helpful at all
1 _____ Haven't received any in this school

10. About how often do teachers require you to use the school library for supplementary reading?

4 _____ Practically every day
3 _____ Once a week
2 _____ 2 or 3 times a week
1 _____ Less often

11. To what extent are teachers available and willing to give you outside help on your studies?

1 _____ Seldom or never
2 _____ Occasionally
3 _____ Usually when needed
4 _____ Whenever it is needed

12. How would you describe the standards (expectations) set by your teachers?

5 _____ Much too difficult
4 _____ Somewhat difficult
3 _____ About right
2 _____ Somewhat easy
1 _____ Much too easy

13. How adequate is the supply of supplementary reading materials (other than textbooks) of the library for serving your special interests and needs?

4 _____ All materials are available
3 _____ Usually materials needed can be located
2 _____ Frequently materials are not available
1 _____ Library sources are very inadequate

14. Which of these statements best describes your feeling about going to school each day?

5 _____ Always look forward to it with enthusiasm
4 _____ Usually look forward to it with enthusiasm
3 _____ Frequently am indifferent about it
2 _____ Very often dread the prospect of school
1 _____ Always dislike having to go to school

15. In general, to what extent do the subjects you are now taking seem meaningful for your future interests and needs?

3 _____ Considerably
2 _____ Somewhat
1 _____ Most seem unrelated

16. If you could be most remembered here at school for any one of three things below, which one would you want it to be?

1 _____ Leader in activities
2 _____ Most brilliant-best student
3 _____ Most popular with others

17. How would you rate the educational opportunities offered by your high school in regard to preparation for college (or for a job if you are non-college bound)?

1 _____ Very inferior
2 _____ Inferior
3 _____ Average
4 _____ Good
5 _____ Very good

18. Rank the five items below in terms of their importance to you on a job in the future (rank from 1 to 5)

_____ Security of steady work
_____ Opportunity for rapid rise
_____ Chance to help others
_____ Friendly people to work with
_____ High income

19. What is your reaction to the criticism sometimes made of high schools that too much emphasis is placed on grades (marks)

_____ Strongly agree
_____ Tend to agree
_____ Tend to disagree
_____ Strongly disagree

20. To what extent are students given freedom and unscheduled time in which they are able to decide from a variety of learning opportunities (using the library, labs, seeing teachers, etc.)?

1 _____ There is too much freedom and laxity
2 _____ About right amount is provided
3 _____ There is little freedom, which regimentation

21. How satisfied are you thus far with your academic achievement in high school?

1 _____ Thoroughly dissatisfied
2 _____ Somewhat dissatisfied
3 _____ Satisfied
4 _____ Thoroughly satisfied

22. Does your school offer all the subjects you would like to take in high school?

2 _____ Yes
1 _____ No If your answer is no, list those courses you would like to take:
0 _____

23. Rank the nine subject areas listed below placing a 1 by the subject that interests you most, a 9 by the one that interests you least, etc.

_____ English
_____ Foreign language
_____ Mathematics
_____ Social Studies
_____ Music
_____ Science
_____ Industrial Arts/Home Economics
_____ Business Education

24. What is your impressions of the quality of teaching in Portsmouth High School?

3 _____ excellent
2 _____ good
1 _____ could be improved

25. Would you like to see a Naval Junior ROTC established at Portsmouth High School? (Participation would be voluntary)

5 _____ definitely yes
4 _____ probably yes
3 _____ no opinion
2 _____ probably no
1 _____ definitely no

26. What is your opinion of the Portsmouth High School Student Council?

3 _____ it adequately represents the feeling of the student body
2 _____ it does neither harm nor good
1 _____ it tries to please the school administration

27. From what you know or have heard, of the school spirit of other high schools, what do you rate the spirit of Portsmouth High School?

4 _____ extremely high
3 _____ above average
2 _____ below average
1 _____ poor

28. How would you evaluate the Guidance Department of Portsmouth High School?

5 _____ excellent
4 _____ good
3 _____ average
2 _____ fair
1 _____ poor

29. What is your opinion of the effectiveness of audio-visual teaching aids such as TV and films used at Portsmouth High School?

3 _____ they definitely aid instruction
2 _____ they do not affect me one way or the other
1 _____ they are over-used to the extent that they detract from good instruction

30. What is your reaction to Portsmouth High School's receiving a grant from the U. S. Office of Education to find the reaction of high school students to a curriculum oriented toward oceanology?

3 _____ I think it is a good idea
2 _____ I'll reserve decision until I know more about the program
1 _____ I am pessimistic about the value of using students in any experiment program

31. What is your rating of the September assembly program on oceanology?

5 _____ excellent
4 _____ good
3 _____ average
2 _____ below average
1 _____ poor

32. Would you like for Portsmouth High School to offer a separate course in oceanology?

3 _____ yes
2 _____ no
1 _____ no opinion

33. Do you feel that the courses you are now taking are the correct ones for your goals?

3 _____ yes
2 _____ no
1 _____ don't know

34. List the things you like most about your school. Include those things you feel are its strengths:

_ _____ _____

_____

35. List the things you like least about your school. Include those things you feel are its weaknesses:

Table 2 A

Pre-test Percentage Responses to Questionnaire
(N=632)

Question 1: Emphasis on sports

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Too much	6	4	6	9	9	8	5
2 About right	63	70	59	65	58	59	67
3 Too little	30	26	36	27	33	33	27

Question 2: Opportunity to participate in extra curricular activities

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Only a few	28	27	28	29	28	23	37
2 Large number	41	42	38	41	43	45	37
3 Nearly all	31	32	34	29	29	32	31

Question 3: Emphasis on cultural events

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Too little	60	47	65	65	69	55	64
2 About right	37	50	32	31	29	39	34
3 Too much	3	4	3	4	2	5	2

Question 4: Opportunity in making changes in student govt.

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 run by popular students	48	32	53	47	60	40	57
2 faculty controlled	26	29	29	21	23	32	20
3 ample opportunity	25	39	19	32	17	28	23

Table 2 A

Question 5: Value of participation in student activities

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 little or no value	30	32	35	27	24	32	29
2 some value	41	45	38	43	39	40	43
3 valuable & useful	19	16	15	22	25	17	21
4 very valuable	10	8	11	9	12	12	8

Question 6: Average number hours spent on extra-curr. activities

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 0	38	39	40	37	32	42	33
2 1-4	35	37	36	34	33	27	44
3 3-10	18	18	17	18	20	17	20
4 11-20	6	4	4	8	9	10	2
5 More than 20	3	1	3	3	5	5	1

Question 7: Average number hours spent in study

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 0	22	27	23	17	18	29	15
2 1-4	42	39	40	46	48	43	42
3 5-10	28	25	29	34	27	23	34
4 11-20	6	8	5	3	6	5	7
5 More than 20	1	1	3	0	1	1	2

Question 8: Need for more personal attention

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Need someone more often	46	40	37	54	62	45	47
2 Someone usually available	39	41	48	37	29	40	39
3 Someone always available	14	19	15	10	10	15	13

Table 2 A

Question 9: To what extent has counseling been helpful?

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Have not received any	6	3	10	9	3	7	5
2 Not very helpful	12	7	8	17	23	14	11
3 Very little help	20	11	22	24	29	18	22
4 Some help	43	52	41	37	38	42	44
5 Extremely helpful	18	27	19	14	6	18	18

Question 10: How often required to use library?

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Hardly at all	60	59	69	65	43	60	59
2 2 or 3 times a month	26	27	23	20	34	23	29
3 Once a week	9	9	5	10	15	11	8
4 Every day	5	5	3	5	8	6	4

Question 11: Availability of teachers to give outside help

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Seldom or never	14	14	15	11	14	16	12
2 occasionally	25	23	27	25	17	24	23
3 usually	41	39	39	46	43	40	42
4 whenever needed	21	24	18	17	26	21	22

Table 2 A

Question 12: Standards set by teachers

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Too easy	2	0	1	3	3	2	2
2 Somewhat easy	6	5	3	6	12	8	4
3 About right	46	44	40	44	60	44	48
4 Somewhat	35	40	41	37	17	33	38
5 Too difficult	11	10	14	10	8	13	9

Question 13: Adequacy of supplementary reading materials

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Inadequate	12	11	17	7	10	9	15
2 Freq. not available	27	19	28	26	40	31	24
3 Cannot be located	53	53	49	62	46	49	58
4 All are available	8	14	6	5	3	11	4

Question 14: How do you feel about going to school every day?

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Dislike going	13	13	12	17	14	16	11
2 Dread prospect	19	19	18	13	19	18	19
3 Indifferent	39	39	38	42	40	45	34
4 usually enthused	24	25	27	20	23	18	30
5 Always enthused	5	5	6	3	4	3	6

Table 2 A

Question 15: Meaningfulness of subjects to interests & needs.

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Unrelated	30	22	30	30	30	30	29
2 Somewhat related	42	55	35	40	35	43	42
3 Considerably related	28	23	27	30	34	27	29

Question 16: Most significant rememberance

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Leader in activities	21	17	19	20	35	21	21
2 Most brilliant	18	17	19	16	18	22	14
3 Most popular	61	66	61	64	47	57	65

Question 17: How H.S. prepared for college.

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1very inferior	6	4	5	8	7	7	4
2 Inferior	11	9	11	16	11	12	10
3 Average	46	47	47	47	43	47	45
4 Good	30	30	32	22	35	28	33
5 Very good	7	11	5	7	3	6	8

Question 19: Is too much emphasis put on grades?

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Strongly disagree	8	10	10	4	8	9	8
2 Tend to disagree	20	25	26	11	14	21	20
3 Tend to agree	34	36	28	39	37	29	40
4 Strongly agree	37	28	36	47	41	41	32

Table 2 A

Question 20: How much student freedom?

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Too much freedom	2	2	2	2	2	4	0
2 About right	26	34	25	24	17	26	26
3 Much regimentation	72	64	73	73	82	71	74

Question 21: Satisfaction with Academic achievement

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Thoroughly dissatisfied	13	13	14	12	15	16	11
2 somewhat dissatisfied	42	40	39	55	36	45	38
3 Satisfied	40	44	43	31	40	35	45
4 Thoroughly satisfied	5	5	3	2	10	4	5

Question 24: Rating of quality of teaching

Answer	Student Total	Grade 9	10	11	12	total Males	Females
1 Could be improved	52	47	58	61	44	51	54
2 Good	41	46	34	37	49	42	41
3 Excellent	7	7	8	3	8	8	5

Question 25: Should Junior NROTC be established?

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Definitely no	21	13	25	22	26	25	16
2 Probably no	5	6	3	6	7	6	4
3 No opinion	40	39	44	40	36	35	45
4 Probably yes	20	26	14	19	17	16	23
5 Defintely yes	14	17	13	12	15	18	11

Table 2 A

Question 26: Opinion of Student Council

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Tries to please administration	25	19	27	30	28	27	24
2 Does neither harm nor good	38	37	40	32	46	38	39
3 Adequately represents students	36	44	32	38	26	35	38

Question 27: How do you rate spirit in H.S.?

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Poor	17	4	19	23	28	17	16
2 Below Ave.	29	26	22	37	34	28	29
3 Above Ave.	44	54	47	33	34	43	45
4 Extremely high	11	16	12	7	4	12	10

Question 28: Evaluation of guidance department

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Poor	9	4	5	14	18	12	5
2 Fair	17	5	15	23	31	14	19
3 Average	24	25	23	22	26	25	23
4 Good	35	42	39	33	21	32	38
5 Excellent	15	24	18	9	3	16	14

Question 29: Effectiveness of visual aids

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Over-used to distraction	3	4	4	2	3	5	2
2 Not affected	42	49	50	33	31	36	48
3 Definitely aid instruction	54	47	46	66	66	59	50

Table 2 A

Question 30: Reaction to Oceanology Curriculum

Ans	Student Total	Grade 9	10	11	12	Total Males	Females
1 Pessimistic: re value	5	7	5	6	2	7	4
2 reserve judgement	42	49	44	43	25	34	49
3 Good idea	53	44	51	51	73	59	47

Question 31: Rating of September Assembly on Oceanology

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Poor	6	5	7	7	7	8	5
2 Below Ave.	5	4	7	5	5	5	5
3 Average	29	36	30	25	18	29	28
4 Good	39	38	34	41	42	35	42
5 Excellent	21	17	22	22	27	23	20

Question 32: Favor separate course in oceanology?

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 No	8	6	12	8	6	7	10
2 No opinion	37	43	37	35	30	35	39
3 Yes	55	50	51	57	64	59	51

Question 33: Are your courses the correct ones?

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 No	35	29	36	43	37	40	31
2 Don't know	29	36	30	23	21	41	26
3 Yes	36	34	34	34	43	29	43

Table 2 B

Question 1: Emphasis on Sports

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Too much	5	8	6	13	4	4	11	4
2 About right	70	51	52	58	69	64	77	59
3 Too little	25	41	42	30	27	32	11	38

Question 2: Opportunity to participate in extra curricular act.

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Only a few	20	18	30	29	34	35	29	28
2 Large number	47	39	48	43	35	37	34	43
3 Nearly all	33	43	22	29	30	27	37	30

Question 3: Emphasis on cultural events

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Too little	41	52	66	70	53	74	65	66
2 About right	52	42	28	28	47	25	33	30
3 Too much	8	5	6	1	0	2	2	4

Question 4: Opportunity in making changes in student gov't.

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Run by pop. students	32	37	45	51	46	64	48	71
2 Faculty control	30	41	30	28	28	20	13	16
3 Ample opportunity	38	23	25	21	26	16	39	13

Question 5: Value of participation in student activities

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Little or no value	35	35	23	26	28	33	31	22
2 Some value	44	32	36	46	46	43	49	31
3 Valuable & useful	13	14	27	17	20	16	17	35
4 Very valuable	9	15	14	11	6	9	3	13

Question 6: Average number of hours spent on extr-curr. act.

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 0	43	49	35	41	35	34	38	21
2 1-4	27	32	22	24	49	39	46	45
3 3-10	20	9	22	14	16	22	14	29
4 11-20	8	5	14	13	0	3	2	5
5 more than 20	3	4	6	8	0	3	0	0

Question 7: Aveage number of hours per week spent in study

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 0	34	36	24	20	19	13	10	16
2 1-4	39	38	48	48	39	41	44	48
3 5-10	24	19	25	23	27	36	44	32
4 11-20	3	5	3	8	13	5	3	4
5 more than 20	0	1	0	1	2	5	0	0

Question 8: Need for more personal attention

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Need someone more often	34	34	57	64	47	40	50	56
2 Someone usually available	47	48	33	26	34	48	40	32
3 Someone always available	19	18	10	10	19	13	10	9

Question 9: To what extent has counseling been helpful?

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1Have not received any	5	9	11	6	1	11	6	0
2 Not very helpful	7	9	19	24	7	7	14	21
3 Very little help	12	16	20	27	9	26	27	32
4 Some help	47	46	34	39	57	38	40	38
5 Extremely helpful	29	19	16	4	26	19	13	9

Question 10: How often required to use library?

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1Hardly at all	58	67	66	51	60	70	63	32
2 2 or 3 time/month	22	21	17	33	32	24	24	36
3 once a week	12	7	13	11	5	4	8	20
4 every day	8	5	5	4	2	2	5	13

Table 2 B

Question 11: Availability of teachers to give outside help

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Seldom or never	17	12	16	17	10	18	6	11
2 Occasionally	24	32	17	19	22	23	33	14
3 Usually	38	34	46	43	39	44	48	43
4 Whenever needed	20	22	21	20	29	16	14	32

Question 12: Standards set by teachers

Answer	Male by Grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Too easy	1	3	5	0	0	0	2	7
2 Somewhat easy	8	4	8	14	3	2	3	9
3 About right	43	38	34	61	46	42	52	58
4 Somewhat difficult	37	38	34	20	43	44	40	15
5 Too difficult	11	18	18	6	8	12	3	11

Question 13: Adequacy of supplementary reading materials

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Inadequate	7	15	6	9	15	19	8	13
2 Freq. not available	21	32	35	41	18	26	16	39
3 Cannot be located always	53	45	52	45	60	51	73	48
4 All are available	20	8	6	6	7	4	3	0

Question 14: How do you feel about going to school every day?

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Dislike going	16	13	20	15	9	11	13	11
2 Dread prospect	16	22	16	18	22	15	21	20
3 Indifferent	47	40	45	48	31	37	38	30
4 Usually enthused	21	21	16	14	29	31	25	35
5 Always enthused	1	4	3	4	9	7	3	4

Question 15: Meaningfulness of subjects to interest & needs

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Unrelated	21	41	27	36	22	35	33	24
2 Somewhat unrelated	56	34	38	37	54	36	41	33
3 Considerably related	23	25	35	27	23	29	25	44

Table 2 B

Question 16: Most significant rememberence

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Leader in activities	24	18	15	28	9	20	25	43
2 Most brilliant	19	29	20	20	15	13	11	16
3 Most popular	58	53	65	52	76	67	64	41

Question 17: How H.S. prepared for college

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Very inferior	6	6	11	7	1	5	5	7
2 Inferior	10	11	15	14	7	10	18	7
3 Average	51	46	44	44	43	47	49	42
4 Good	23	32	23	33	38	32	21	38
5 Very good	10	4	7	1	11	6	7	5

Question 19: Is too much emphasis put on grades?

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Strongly disagree	13	7	7	7	7	12	2	9
2 Tend to disagree	25	26	11	17	26	26	10	9
3 Tend to agree	31	26	34	25	42	29	43	53
4 Strongly agree	32	40	48	51	25	33	46	28

Question 20: How much student freedom?

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Too much freedom	3	4	5	3	0	1	0	0
2 About right	34	23	25	17	34	26	23	16
3 Much regimentation	63	73	70	80	66	73	77	84

Question 21: Satisfaction with academic achievement

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Thoroughly dissatisfied	15	12	16	20	10	16	8	7
2 Somewhat dissatisfied	47	42	57	36	32	37	52	36
3 Satisfied	35	42	24	36	53	44	38	44
4 Thoroughly satisfied	4	3	3	7	5	3	2	13

Table 2 B

Question 24: Rating of quality of teaching

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Coulb be improved	51	53	54	44	43	61	67	44
2 Good	40	34	44	50	52	34	30	47
3 Excellent	9	12	2	6	5	5	3	9

Question 25: Should Junior NROTC be established?

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Definitely no	14	30	31	33	11	21	14	18
2 Probably no	7	5	5	8	4	2	8	5
3 No opinion	36	35	32	36	43	51	48	35
4 Probably yes	20	16	15	9	33	13	24	25
5 Definitely yes	23	14	18	14	10	13	6	16

Question 26: Opinion of student council

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 tries to please admin.	22	28	32	29	16	27	28	28
2 Does neither harm or good	34	36	38	48	40	43	25	43
3 Adequately represents the students	44	36	30	23	44	29	47	30

Question 27: How do you rate spirit in H.S.?

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Poor	6	18	31	21	2	19	16	36
2 Below average	24	20	34	38	29	23	39	28
3 Above average	51	48	31	37	56	46	36	32
4 Extremely high	19	14	5	5	13	11	8	4

Question 28: Evaluation of guidance department

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Poor	3	9	19	22	4	1	8	13
2 Fair	6	9	21	27	4	20	25	36
3 Average	27	23	19	27	23	23	24	25
4 Good	36	36	34	21	48	41	32	22
5 Excellent	27	22	6	3	20	16	11	4

Table 2 B

Question 29: Effectiveness of visual aids

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Over-used to distraction	5	7	4	3	3	1	0	4
2 Not affected	41	43	23	35	58	55	42	25
3 Definitely aid instruction	54	50	74	62	39	44	58	71

Question 30: Reaction to Oceanology curriculum

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Pessimistic: re value	9	6	10	3	5	4	2	2
2 Reserve judgement	44	37	26	22	54	50	60	28
3 Good idea	46	58	64	75	41	46	39	70

Question 31: Rating of September assembly on oceanology

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Poor	6	6	10	11	3	8	3	2
2 Below average	2	8	5	8	6	6	5	2
3 Average	41	28	20	20	31	31	31	16
4 Good	33	39	30	36	44	31	53	50
5 Excellent	18	18	35	25	16	24	8	30

Question 32: Favor separate course in oceanology?

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 No	5	9	3	9	8	14	13	2
2 No opinion	45	30	29	31	42	43	40	29
3 Yes	50	61	68	60	51	44	47	69

Question 33: Are your course the correct ones?

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 No	36	38	42	46	22	34	43	25
2 Don't know	39	31	27	25	34	29	20	15
3 Yes	26	31	31	29	44	37	38	60

Table 3 A

Post-test Percentage Responses to Questionnaire
(N= 447)

Question 1: Emphasis on sports

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Too much	5	3	6	6	6	5	6
2 About right	73	78	69	71	63	70	75
3 Too little	22	19	25	23	31	25	19

Question 2: Opportunity to participate in extra-curricular act.

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Only a few	21	19	19	29	18	20	22
2 Large number	49	50	54	43	41	49	50
3 Nearly all	29	31	27	28	41	31	28

Question 3: Emphasis on cultural events

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Too little	43	33	52	50	41	38	49
2 About right	54	64	46	47	59	58	50
3 Too much	3	3	2	3	0	5	1

Question 4: Opportunity in making change in student gov't

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Run by popular student	0	0	0	0	0	0	0
2 Faculty control	53	43	63	59	35	56	51
3 Ample opportunity	47	57	37	41	55	44	49

Table 3 A

Question 5: Value of participation in student activities

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Little or no value	26	25	32	20	24	27	25
2 Some value	46	46	44	49	41	47	44
3 Valuable & useful	20	22	16	23	29	18	22
4 Very valuable	8	7	8	8	6	7	8

Question 6: Ave. number hours per week spent on extra-curr. act.

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 0	40	45	39	35	41	45	36
2 1-4	36	40	33	35	29	29	42
3 3-10	17	11	24	17	18	18	16
4 11-20	5	3	3	10	12	7	4
5 more than 20	1	1	1	3	0	1	1

Question 7: Ave. number hourse per week spent in study

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 0	22	23	24	14	29	28	16
2 1-4	45	49	44	47	41	44	48
3 5-10	26	22	26	33	18	23	28
4 11-20	5	3	6	5	6	3	6
5 more than 20	2	3	1	1	6	2	2

Question 8: Need for more personal attention

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Need someone more often	36	27	34	56	40	37	36
2 Someone usually available	42	44	42	40	40	42	43
3 Someone always available	21	29	24	4	20	21	21

Table 3 A

Question 9: To what extent has counseling been helpful?

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Have not received any	4	3	5	2	18	4	4
2 Not very helpful at all	8	3	10	11	12	9	6
3 Very little help	16	10	19	26	12	18	16
4 Some help	46	45	47	40	47	45	47
5 Extremely helpful	26	40	19	15	12	24	28

Question 10: How often required to use library

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Hardly ever	73	80	69	68	63	69	77
2 2 or 3 times/ month	9	6	13	9	0	9	8
3 Once a wk.	13	12	12	19	19	16	11
4 every day	5	2	7	4	19	6	4

Question 11: Availability of teachers to give outside help

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Seldom or never	12	13	12	3	12	1	10
2 Occasionally	24	19	31	21	24	22	26
3 Usually	45	46	40	52	41	42	48
4 Whenever needed	19	22	17	18	24	22	17

Table 3 A

Question 12: Standards set by teachers

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Too easy	2	1	3	2	0	3	1
2 Somewhat easy	5	7	3	7	0	6	4
3 About right	47	49	44	45	65	44	50
4 Somewhat difficult	38	36	42	40	18	38	39
5 Too difficult	7	7	7	5	18	9	6

Question 13: Adequacy of supplementary reading material

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Inadequate	13	6	19	13	31	12	14
2 Freq. not available	28	25	29	32	19	28	28
3 Cannot be located	51	58	45	47	50	49	52
4 All are available	8	11	6	7	0	11	6

Question 14: How do you feel about going to school every day?

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Dislike going	10	10	8	8	35	10	9
2 Dread prospect	22	21	23	22	18	23	21
3 Indifferent	43	42	44	45	24	46	39
4 Usually enthused	23	25	21	23	18	18	27
5 Always enthused	3	2	4	3	6	2	4

Table 3 A

Question 15: Meaningfulness of subjects to interests & needs

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Unrelated	25	20	30	26	24	25	24
2 Somewhat unrelated	47	53	45	40	47	50	44
3 Considerably unrelated	28	27	26	34	29	25	31

Question 16: Most significant remembrance

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Leader in activities	23	21	22	29	20	24	22
2 Most brilliant	20	21	13	26	40	25	16
3 Most popular	57	58	64	45	40	51	52

Question 17: How H.S. prepared for college

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Very inferior	4	4	6	2	6	5	3
2 Inferior	12	9	10	19	18	12	12
3 Average	45	44	47	43	47	45	45
4 Good	30	31	29	31	24	30	31
5 Very good	9	12	8	4	6	8	9

Question 19: Is too much emphasis put on grades?

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Strongly disagree	6	8	6	1	6	5	6
2 Tend to disagree	15	18	13	11	18	14	15
3 Tend to agree	42	42	41	45	41	45	40
4 Strongly agree	38	33	39	44	35	35	39

Table 3 A

Question 20: How much student freedom?

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Too much freedom	2	1	2	2	0	2	1
2 About right	32	47	21	25	24	37	28
3 much regimentation	66	52	77	73	76	61	71

Question 21: Satisfaction with academic achievement

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Thoroughly dissatisfied	9	8	9	6	24	11	7
2 Somewhat dissatisfied	40	33	37	57	35	40	39
3 satisfied	46	52	49	33	35	42	49
4 Thoroughly satisfied	5	7	5	4	6	6	5

Question 24: Rating of quality of teaching

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Could be improved	46	42	49	51	36	41	50
2 Good	46	48	45	44	43	49	43
3 Excellent	8	10	7	5	21	10	7

Question 25: Should Junior NROTC be established?

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Definitely no	20	10	26	27	35	26	16
2 Probably no	6	6	7	5	6	9	4
3 No opinion	43	48	41	41	18	31	53
4 Probably yes	18	17	14	22	35	19	16
5 Definitely yes	13	19	12	5	6	15	11

Table 3 A

Question 26: Opinion of Student Council

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Tries to please admin.	23	19	24	24	40	22	23
2 Does neither harm nor good	38	29	43	41	27	39	38
3 Adequately represents the students	39	51	28	35	33	39	39

Question 27: How do you rate spirit in H. S. ?

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Poor	12	4	20	15	6	12	12
2 Below ave.	34	24	37	47	50	34	35
3 Above ave.	44	57	36	34	38	43	45
4 Extremely high	10	15	8	4	6	11	8

Question 28: Evaluation of guidance dept.

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Poor	7	2	8	14	7	9	5
2 Fair	15	6	13	30	21	16	13
3 Average	22	15	28	23	36	19	25
4 Good	36	45	32	28	29	37	35
5 Excellent	20	32	18	5	7	19	21

Question 29:Effectiveness of visual aids

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1Overused to distraction	7	7	5	7	7	11	3
2 Not effective	37	38	46	23	33	33	41
3 Definitely aids instruction	56	55	48	70	60	57	56

Table 3 A

Question 30: Reaction to oceanology curriculum

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Pessimistic: re value	6	6	7	3	7	9	3
2 reserve judgement	41	44	40	42	0	37	44
3 Good idea	53	49	53	55	93	54	53

Question 31: Rating of Sept. assembly on oceanology

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 Poor	4	3	7	3	0	5	4
2 Below Ave.	6	5	8	3	7	8	5
3 Average	27	32	29	17	14	24	30
4 Good	44	44	38	50	50	40	47
5 Excellent	19	15	17	26	29	24	14

Question 32: Favor separate course in oceanology

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 No	41	47	39	36	19	36	45
2 No opinion	7	11	7	2	0	5	6
3 Yes	52	42	53	62	81	56	49

Question 33: Are your courses the corrent ones?

Answer	Student Total	Grade 9	10	11	12	Total Males	Females
1 No	35	37	30	39	27	37	32
2 Don't know	28	22	39	23	20	26	29
3 Yes	38	41	32	38	53	37	38

Table 3 B

Question 1: Emphasis on sports

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Too much	5	6	2	25	2	7	11	0
2 About right	77	67	66	25	79	71	77	75
3 Too little	19	28	32	50	19	22	13	25

Question 2: Opportunity to participate in extra-curricular act.

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Only a few	16	19	28	25	22	20	29	15
2 Large number	52	53	38	25	48	54	48	46
3 Nearly all	31	27	34	50	30	27	23	38

Question 3: Emphasis on cultural events

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Too little	30	42	44	50	36	60	56	38
2 About right	63	54	54	50	64	40	40	62
3 Too much	7	4	2	0	0	0	4	4

Question 4: Opportunity in making change in student gov't

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 run by popular stud.	0	0	0	0	0	0	0	0
2 faculty control	44	67	60	50	43	59	37	31
3 ample opportunity	56	33	40	50	57	41	43	69

Question 5: Value of participation in student activities

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Little or no value	28	35	14	25	22	29	25	23
2 Some value	48	39	59	50	44	48	40	38
3 Valuable & useful	20	15	20	25	24	11	25	31
4 Very valuable	5	11	6	0	9	6	10	8

Question 6: Ave. number of hr. per wk. spent on extra-curr. act.

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 0	49	44	40	50	41	35	29	38
2 1-4	31	32	24	0	48	35	46	38
3 3-10	15	19	20	25	7	28	15	15
4 11-20	3	4	14	25	3	2	6	8
5 more than 20	1	1	2	0	1	0	4	0

Table 3 B

Question 7: Ave. number hrs. per week spent in study

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 0	29	32	20	25	17	17	7	31
2 1-4	48	41	45	0	49	46	49	54
3 5-10	18	22	33	50	26	29	33	8
4 11-20	2	4	2	0	3	7	9	8
5 More than 20	2	1	0	25	5	0	2	0

Question 8: Need for more personal attention

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 need someone more oftent	29	36	50	50	25	83	63	38
2 someone usually available	41	41	44	50	47	43	35	38
3 someone always available	29	23	6	0	28	24	2	23

Question 9: To what extent has counseling been helpful?

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 have not received any	4	4	2	25	2	5	2	15
2 Not very helpful at all	5	14	12	0	1	7	10	15
3 Very little help	11	18	28	25	9	19	23	8
4 Some help	45	44	46	50	44	49	46	46
5 Extremely helpful	36	19	12	0	43	19	19	15

Question 10: How often required to use library

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Hardly ever	79	63	61	75	82	75	75	58
2 2 or 3 time/month	6	15	6	0	6	10	13	0
3 once a week	12	13	29	0	11	11	8	25
4 every day	4	10	4	25	1	4	4	17

Table 3 B

Question 11: Availability of teachers to give outside help

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Seldom or never	13	19	8	25	14	6	8	8
2 Occasionally	25	20	20	25	14	41	23	23
3 Usually	41	40	48	25	50	41	56	48
4 Whenver needed	21	21	24	25	23	12	13	23

Question 12: Standards set by teacher

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Too easy	1	6	2	0	1	1	2	0
2 Somewhat easy	8	4	6	0	5	2	8	0
3 About right	48	41	45	25	51	48	46	77
4 Somewhat difficult	33	39	43	50	39	44	38	8
5 Too difficult	10	10	4	25	5	5	6	15

Question 13: Adequacy of supplementary reading material

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Inadequate	5	18	12	67	7	20	15	23
2 Freq. not available	24	31	31	0	26	28	33	23
3 Cannot be located	59	39	49	33	57	51	46	54
4 All are available	12	13	8	0	10	1	6	0

Question 14: How do you feel about going to school every day?

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Dislike going	11	11	7	25	9	5	9	38
2 Dread prospect	25	23	22	0	18	23	21	23
3 Indifferent	43	44	57	50	41	45	34	15
4 Usually enthused	20	20	13	0	29	23	32	23
5 Always enthused	1	3	2	25	3	5	4	0

Question 15: Meaningfulness of subjects ot interests & needs

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Unrelated	20	29	27	50	20	30	25	15
2 Somewhat related	57	44	47	25	48	45	33	54
3 Considerably related	23	26	27	25	31	25	42	31

Table 3 B

Question 16: Most significant remembrance

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Leader in activities	27	16	31	25	15	28	28	18
2 Most brilliant	24	19	29	75	19	8	23	27
3 Most popular	49	65	40	0	65	64	50	55

Question 17: How H. S. prepared for college

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Very inferior	4	7	4	25	4	5	0	0
2 Inferior	11	10	17	25	8	10	22	15
3 Average	37	49	55	25	50	46	30	54
4 Good	38	28	17	25	24	30	46	23
5 Very good	11	6	6	0	13	10	2	8

Question 19: Is too much emphasis put on grades?

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Strongly disagree	8	6	0	0	7	6	2	8
2 Tend to disagree	18	10	13	25	18	16	9	15
3 Tend to agree	45	46	45	25	38	38	45	46
4 Strongly agree	29	38	43	50	37	40	45	31

Question 20: How much student freedom?

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Too much freedom	1	3	4	0	1	1	0	0
2 About right	51	25	31	25	43	17	19	23
3 Much regimentation	48	72	65	75	56	82	81	77

Question 21: Satisfaction with academic achievement

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Thoroughly dissatisfied	8	13	8	50	8	6	4	15
2 Somewhat dissatisfied	36	34	57	50	31	40	56	31
3 Satisfied	48	44	35	0	56	52	31	46
4 Throughly satisfied	8	9	0	0	6	1	8	8

Table 3 B

Question 24: Rating of quality of teaching

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Could be improved	39	42	46	33	44	54	55	36
2 Good	48	49	50	67	48	41	38	36
3 Excellent	13	9	4	0	8	5	6	27

Question 25: Should junior NROTC be established?

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Definitely no	16	28	35	75	6	24	19	23
2 Probably no	10	10	6	0	3	5	4	8
3 No opinion	31	31	33	0	63	48	50	23
4 Probably yest	23	15	18	25	11	13	25	38
5 Definitely yes	20	15	8	0	17	10	2	8

Question 26: Opinion of student council

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Tries to please admin.	18	20	28	67	21	27	29	33
2 Does neither harm no good	24	56	43	0	34	41	39	33
3 Adequately represents the students	59	23	28	33	45	32	41	33

Question 27: How do you rate spirit in H.S.?

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Poor	6	20	13	0	2	19	17	8
2 Below average	23	35	49	67	25	38	45	46
3 Above average	52	37	33	33	61	35	34	38
4 Extremely high	18	8	4	0	11	8	4	8

Question 28: Evaluation of guidance dept.

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Poor	4	10	14	50	0	6	13	0
2 Fair	8	10	35	50	4	16	26	17
3 Average	13	25	20	0	17	30	26	42
4 Good	49	35	22	0	42	30	34	33
5 Excellent	26	19	8	0	37	17	2	8

Table 3 B

Question 29: Effectiveness of visual aids

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Overused to distraction	11	11	12	0	3	1	2	8
2 Not effective	31	40	22	100	44	51	23	23
3 Definitely aids instruction	58	49	66	0	52	48	74	69

Question 30: Reaction to oceanology curriculum

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Pessimistic: re value	10	12	6	0	3	2	0	8
2 Reserve judgment	37	39	36	0	51	41	48	0
3 Good idea	54	49	58	100	45	56	52	92

Question 31: Rating of Sept. assembly on oceanology

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 Poor	4	10	2	0	2	5	5	0
2 Below average	6	11	4	33	5	6	2	0
3 Average	28	20	10	33	36	30	26	9
4 Good	42	30	49	33	47	45	51	55
5 Excellent	20	21	35	0	10	14	16	36

Question 32: Favor separate course in oceanology

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 No	41	37	28	33	53	41	44	15
2 No opinion	10	9	4	0	11	6	0	0
3 Yes	49	54	68	67	36	52	56	85

Question 33: Are your courses the correct ones?

Answer	Male by grade				Female by grade			
	9	10	11	12	9	10	11	12
1 No	43	26	44	0	31	33	33	33
2 Don't know	19	35	24	67	25	41	22	8
3 Yes	38	38	32	33	44	26	44	58

Table 4

Pre-and Post-test Rankings on Item #18
(Total Sample)

Question #18

Rank the five items below in terms of their importance to you on a job in the future (rank from 1-5).

Option	Average Rank by Grade Level				
	Total (N=447)	9(N=176)	10(N=156)	11(N=98)	12(N=17)
1	2.3 (2.5)	2.3 (2.4)	2.3 (2.4)	2.4 (2.5)	2.5 (2.6)
2	3.8 (3.6)	3.8 (3.6)	3.9 (3.7)	3.9 (3.5)	3.6 (3.6)
3	2.7 (2.9)	2.8 (2.7)	2.7 (2.8)	2.6 (3.2)	2.9 (2.8)
4	2.7 (2.8)	2.7 (2.8)	2.7 (2.8)	2.9 (2.9)	3.2 (2.6)
5	3.4 (3.2)	3.5 (3.3)	3.4 (3.3)	3.2 (2.8)	2.8 (3.4)
	Total (N=632)	9(N=204)	10(N=176	11(N=126)	12(N=126)

Options:

1. Security of steady work
2. Opportunity for rapid rise
3. Chance to help others
4. Friendly people to work with
5. High income

N. B. Figures in parentheses are average ranks obtained on first administration.
Pre-test Ns are given at bottom of columns in the table.

Table 5

Pre-and Post-Test Rankings on Item #18

(Male Sample)

Question #18

Rank the five items below in terms of their importance to you on a job in the future (rank from 1-5)

Option	Average Rank by Grade Level				
	Total(N=213)	9(N=86)	10(N=73)	11(N-50)	12(N=4)
1	2.2 (2.4)	2.2(2.2)	2.2(2.1)	2.1(2.5)	2.5(2.6)
2	3.5 (3.3)	3.5(3.2)	3.5(3.3)	3.6(3.2)	3.8(3.5)
3	3.2 (3.4)	3.2(3.3)	3.2(3.6)	3.2(3.6)	4.0(3.0)
4	2.9 (3.0)	2.9(3.0)	2.8(3.1)	3.2(3.1)	2.5(2.7)
5	3.1 (2.8)	3.3(3.0)	3.1(2.8)	2.8(2.4)	2.3(3.1)
	Total(N=313	9(N-106)	10(N=74)	11(N=63)	12(N=70)

Options:

1. Security of steady work
2. Opportunity for rapid rise
3. Chance to help others
4. Friendly people to work with
5. High income

N.B. Figures in parentheses are average ranks obtained on first administration Pre-test Ns are given at bottom of colums in the table.

Table 6

Pre-and Post-test Rankings on Item #18

(Female Sample)

Question #18

Rank the five items below in terms of their importance to you on a job in the future
(rank from 1-5)

Options	Average Rank by Grade Level				
	Total Females (N=234)	9(N=90)	10(N=83)	11(N=48)	12(N=13
1	2.4(2.6)	2.4(2.6)	2.3(2.6)	2.6(2.6)	2.5(2.6
2	4.1(3.9)	4.1(4.0)	4.1(4.0)	4.1(3.7)	2.5(3.8
3	2.3(2.4)	2.4(2.2)	2.3(2.3)	2.1(2.8)	2.6(2.4
4	2.6(2.6)	2.4(2.5)	2.6(2.6)	2.6(2.8)	3.4(2.
5	3.6(3.6)	2.7(3.6)	3.6(3.6)	3.6(3.3)	2.9(3.
	Total (N=319)	9(N=98)	10(N=102)	11(N=63)	12(N=5

Options:

1. Security of steady work
2. Opportunity for rapid rise
3. Chance to help others
4. Friendly people to work with
5. High income

N.B. Figures in parentheses are average ranks obtained on first administration
Pre-test Ns are given at bottom of columns in the table.

Table 7

Frequencies of Responses to Item #22 by Students who completed Questionnaire in January 1970

(N=632)

Item #22

Does your school offer all the subjects you would like to take in high school?
If your answer is no, list those courses you would like to take.

	Total Students	Grade Levels			
Preferred Courses	All Grades	9	10	11	12
Math, Sciences, Computers	45	13	15	9	8
Behavioral Sciences	39	5	8	6	20
English Literature	15	0	7	2	6
Social Studies (Gov't)	14	6	4	1	3
Foreign Languages	35	8	10	7	10
Business Courses	16	5	33	3	5
Vocational-Industrial	91	31	28	15	17
Art, Music, Drama	20	3	7	6	4
Home Econ., Agriculture	24	10	6	4	4

Table 8

Frequencies of Responses to Item #22 by students who completed Questionnaire in January 1970, by sex (Males=313, Females=319)

Item #22

Does your school offer all the subjects you would like to take in high school?
If your answer is no, list those courses you would like to take.

	Males				Females			
Preferred Courses	9	10	11	12	9	10	11	12
Math, Science, Computers	7	7	9	4	6	8	0	4
Behavioral Sciences	1	0	1	10	4	8	5	10
English Literature	0	0	1	3	0	7	1	3
Social Studies (Gov't)	3	2	0	3	3	2	1	0
Foreign Languages	3	2	2	2	5	8	5	8
Business Courses	2	2	2	0	3	1	1	5
Vocational-Industrial	26	20	13	14	5	8	2	3
Art, Music, Drama	1	1	1	4	2	6	5	0
Home Econ., Agriculture	3	0	1	0	7	6	3	4

Table 9

Pre-and Post-test Rankings on Item #23
(Total Sample)

Question #23

Rank the eight areas listed below; placing a 1 by the subject that interests you most, an 8 by the one that interests you least.

Courses	Average Rank (All Grades)	Average Rank by Grade Level 9	10	11	12
English	3.9(3.9)	4.1(4.0)	3.8(4.1)	4.0(4.2)	2.9(3.
Foreign Language	5.4(5.6)	4.8(5.1)	5.5(5.4)	5.9(6.0)	5.8(6.
Mathematics	4.4(4.6)	4.2(4.3)	4.3(4.6)	4.6(5.0)	4.9(4.
Social Studies	4.1(4.0)	4.2(4.5)	4.2(4.1)	3.7(3.5)	3.9(3.
Music	5.2(5.3)	5.3(5.6)	5.0(5.0)	5.4(5.2)	5.3(5.
Science	4.3(4.5)	4.9(4.5)	3.8(4.1)	4.2(4.8)	4.7(4.
Ind'l Arts/Home Econ	4.4(4.5)	3.8(3.9)	4.8(4.5)	4.7(4.7)	4.9(5.
Business Education	5.4(5.4)	5.5(5.3)	5.3(5.4)	5.4(5.3)	4.9(5.

N. B. Figures in parentheses are average ranks obtained on first administration

Table 10

Pre- and Post-test Rankings on Item #23
(By Sex and Grade)

Item #23

Rank the eight areas listed below, placing a 1 by the subject that interests you most, an 8 by the one that interests you least.

Courses Grades	Average Rank Males 9	10	11	12
English	4.8(4.5)	4.7(5.2)	5.0(5.0)	4.3(3.3)
Foreign Language	5.8(5.4)	6.3(6.1)	6.3(6.7)	5.3(6.6)
Mathematics	4.0(3.9)	3.9(4.1)	4.2(4.6)	4.7(4.5)
Social Studies	3.4(3.4)	3.6(3.1)	3.3(3.4)	5.0(2.6)
Music	5.8(6.1)	5.4(6.0)	6.0(5.8)	6.7(4.9)
Science	4.3(4.1)	3.2(3.5)	4.0(4.7)	2.3(4.3)
Ind'l Arts/Home Econ	3.0(3.5)	4.7(4.1)	4.7(4.8)	7.0(5.8)
Business Education	5.7(5.6)	5.7(5.7)	5.4(5.4)	7.7(6.3)

Courses Grades	Average Rank Females 9	10	11	12
English	3.3(3.5)	3.2(3.5)	3.0(3.4)	2.6(2.7)
Foreign Language	4.0(4.9)	4.9(5.0)	5.5(5.4)	5.9(5.6)
Mathematics	4.4(4.7)	4.7(5.0)	4.9(5.3)	4.9(5.0)
Social Studies	5.0(5.6)	4.7(4.6)	4.2(3.6)	3.6(4.4)
Music	4.8(5.2)	4.7(4.4)	4.8(4.7)	5.2(5.6)
Science	5.4(4.9)	4.3(4.5)	4.4(4.8)	5.3(4.8)
Ind'l Arts/Home Econ	4.5(4.2)	4.8(4.7)	4.8(4.6)	4.4(4.3)
Business Education	5.3(5.0)	4.9(5.2)	5.5(5.2)	4.3(5.1)

N.B. Figures in parentheses are average ranks obtained on first administration

Table 11

Principal Components Factor Analysi Results

First Seven Factors - Varimax Rotation
(N=632)

Items	Factor Satur.	FI	FII	FIII	FIV	FV	FVI	FVII	h^2
1	IV	.03	.02	-.11	-.61	-.12	.18	.25	.494
2	III	.16	-.05	.42	.15	.05	.31	-.09	.339
3	VI	.12	-.09	-.01	.05	.06	.61	.05	.403
4	VI	.20	.11	.24	-.05	-.06	.53	-.09	.413
5	IV	-.05	.00	.08	-.65	-.04	-.09	-.19	.483
6	IV	-.09	-.06	.06	-.70	-.01	-.19	-.12	.558
7	VI	.15	-.04	.10	-.22	-.08	-.62	.11	.473
8	I	.52	-.12	.22	.02	.12	.05	.03	.348
9	I	.73	-.14	.02	-.04	-.02	.03	-.02	.553
10	VII	-.09	.02	-.11	-.02	.04	.12	-.59	.382
11	III	-.03	-.36	.56	-.09	-.06	.00	.16	.476
12	II	.20	-.42	-.30	.09	.02	-.03	.38	.457
13	III	.18	-.05	.44	.11	-.14	.19	.04	.302
14	II	.21	-.43	-.02	-.32	-.05	-.23	-.13	.402
15	II	.21	-.65	-.05	-.02	-.12	.00	-.08	.490
16	VII	.03	.03	.02	.24	.14	.18	.58	.448
17	II	.29	-.42	.33	-.01	-.05	-.05	.02	.377
18	(x)	-.33	.09	.30	-.22	.03	-.12	.21	.316
20	VII	-.24	.13	-.20	-.17	-.11	-.14	.41	.346
21	II	.00	-.57	-.04	.06	.00	.01	.03	.337
24	II	.21	-.43	.33	-.01	-.13	.03	-.09	.360
25	V	.32	-.18	-.28	.01	-.43	.08	-.02	.406
26	III	.21	.06	.43	-.15	-.08	.06	-.06	.272
27	I	.60	-.07	.22	.10	-.03	.02	.00	.435
28	I	.76	-.13	.05	.01	.00	.01	.12	.620
29	V	.03	.09	.28	.02	-.47	-.16	-.24	.392
30	V	-.20	-.05	.07	-.06	-.72	-.05	.03	.567
31	V	.08	-.11	.07	-.01	-.74	.05	.08	.577
32	V	-.02	-.06	.02	-.12	-.74	-.04	-.02	.570
33	II	.13	.71	.09	.00	-.03	.05	.03	.529
									(.438)
% of Common Variance		20.5	18.0	13.5	13.0	12.5	11.5	11.0	